

TRANSPORTATION ELEMENT

ADVANCE PLANNING PROGRAM

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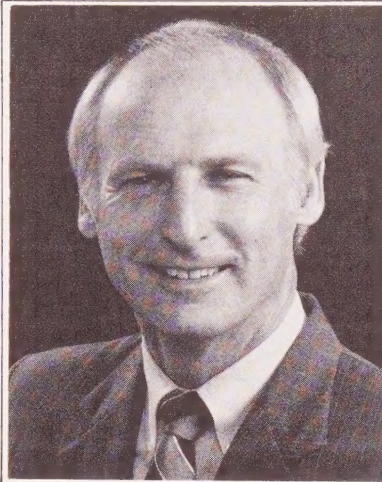
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COUNTY OF ORANGE

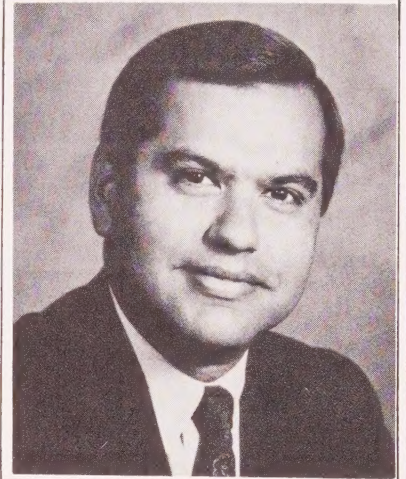
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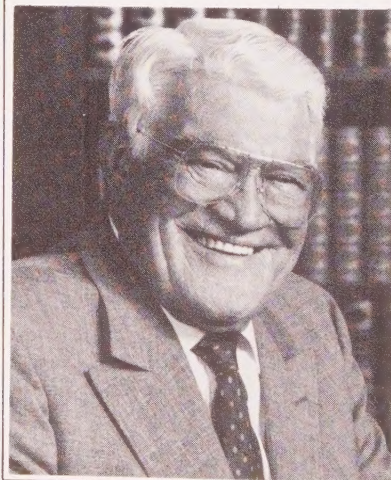


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TRANSPORTATION ELEMENT

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Transportation Planning Division

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(GENERAL PLAN MODERNIZATION)
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No. 82-1398

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Reprinted September, 1992

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LIST OF ACRONYMS/ABBREVIATIONS

ADT	Average Daily Traffic
AFIS	Areawide Fiscal Impact Statement
AHFP	Arterial Highway Financing Program
AMR	Annual Monitoring Report
AQMD	Air Quality Management District
CAA	Community Analysis Area
CALTRANS	State of California Department of Transportation
CAO	County Administrative Office
CARITS	Coastal Area Road Improvements and Traffic Signals
CE	Circulation Element
CENTROCCS	Central Orange County Circulation Study
CTC	California Transportation Commission
CVCS	Capistrano Valley Circulation Study
DMP	Development Monitoring Program
DOT	Department of Transportation
EDD	Employment Development Department
EMA	Environmental Management Agency
ETLAS	El Toro/Laguna Hills Traffic Study
FAC	Forecast and Analysis Center
FCPP	Foothill Circulation Phasing Plan
FHWA	Federal Highway Administration
HOV	High Occupancy Vehicle
LOS	Level of Service
MFI	Maximum Feasible Intersection
MMTS	Multi-Modal Transportation Study
MOU	Memorandum of Understanding
MPAH	Master Plan of Arterial Highways
MPCB	Master Plan of Countywide Bikeways

MPSH	Master Plan of Scenic Highways
MPTS	Master Plan of Transit Systems
NEOCCS	Northeast Orange County Circulation Study
NETTS	Northern El Toro Traffic Study
NOCCS	North Orange County Circulation Study
NSCOCCS	North/South Central Orange County Circulation Study
OCF	Orange County Preferred
OCTAM	Orange County Transportation Analysis Model
OCTC	Orange County Transportation Commission
OCTD	Orange County Transit District
OCUTT	Orange County Unified Transportation Trust
ROW	Right-of-Way
RSA	Regional Statistical Area
RTP	Regional Transportation Plan
SATCAA	Santa Ana Transportation Corridor Alternatives Analysis
SB	Senate Bill
SCAG	Southern California Association of Governments
SCHCS	San Clemente Hills Circulation Study
SEOCCS	Southeast Orange County Circulation Study
SR	State Route
SRTP	Short Range Transit Plan
STIP	State Transportation Improvement Plan
TAZ	Traffic Analysis Zone
TCA	Transportation Corridor Agencies
TE	Transportation Element
TDA	Transportation Development Act
TSM	Transportation Systems Management
UMTA	Urban Mass Transportation Administration

INTRODUCTION

INTRODUCTION

The Transportation Element sets forth a comprehensive strategy for planning, developing, and maintaining a countywide, surface transportation system to serve existing and planned land uses in Orange County. The primary goal, consistent with the State mandate, was originally adopted by the Orange County Board of Supervisors on May 10, 1972. On June 9, 1982, this goal was reaffirmed as follows:

To develop an integrated transportation system consisting of a blend of transportation modes capable of meeting the need to move people and goods by private and public means with maximum efficiency, convenience, economy, safety and comfort; and a system that is consistent with other goals and values of the County and the region.

An important objective of the Transportation Element is to recognize and promote transportation modes and facilities of regional as well as local significance. State freeways and highways (Appendix 1), and transit services are examples of regional systems which have been incorporated into this Transportation Element to aid in providing a framework for cooperative planning and implementation of transportation services and facilities.

The Transportation Element, one of the nine elements of the Orange County General Plan (Appendix 2), contains County policies on the development of transportation facilities necessary to accommodate orderly growth of the County. The Transportation Element identifies goals, objectives, policies, and implementation programs which affect the transportation system and provide guidance for future transportation planning efforts.

The Element contains four components: Master Plan of Arterial Highways (MPAH), Master Plan of Countywide Bikeways (MPCB), Master Plan of Scenic Highways (MPSH), and Master Plan of Transit Systems (MPTS). All four components are closely related and play a vital role in the County's attempt to achieve a balanced transportation system through an integration of multi-modal transportation facilities.

Each component identifies and briefly describes transportation goals, objectives, policies and implementation programs which are intended to serve as countywide guidelines, and specifically to provide direction within the unincorporated territory of the County. This framework is designed to promote a centralized regional, cooperative transportation planning effort, and to facilitate County administration of the unincorporated area. It should be noted that all the appendices of the Element, which contain additional data in support of these components, are a part of the Element.

COMPONENT ONE

MASTER PLAN OF ARTERIAL HIGHWAYS

MASTER PLAN OF ARTERIAL HIGHWAYS COMPONENT

A. OVERVIEW

The Arterial Highways Component establishes a system of countywide surface roadways. This system is depicted on the Master Plan of Arterial Highways (MPH) map (Map 1-1) and is a key factor in the definition of Orange County's transportation policy. The County's role as the overseer of the plan is to coordinate with the cities to develop a consistent intra-community arterial highway system which will effectively serve existing and future land uses.

1. Background

The MPAH was first adopted by the County in 1956. The MPAH became the cornerstone of the first County Circulation Element initially adopted on August 6, 1974, by the Board of Supervisors (Resolution No. 74-1151), and was subsequently amended in December, 1978 (Resolution No. 78-1824). This component is amended on a regular basis, generally in response to land use policy changes within both incorporated and unincorporated areas of the County. These policy changes are reviewed for impacts on the arterial highway system in order to maintain a balance between the land use and transportation plans.

The MPAH depicts a network of major thoroughfares comprising freeways, transportation corridors and four main arterial highway classifications: Major, Primary, Secondary, and Commuter. Modifications to these basic categories are also included in this Element. For example, Major arterials consist of Eight-Lane as well as Six-Lane Major arterial highways. In addition, three other arterial highway sub-categories are identified in this Element, i.e., Superstreets, Modified Major and Modified Primary arterial highways. This highway network plays a major role in regional travel by connecting to and complementing the State highway system and local street network. The major and primary arterial classifications and superstreets predominantly serve through travel. Secondary and commuter arterial highways function as collectors funneling traffic from local streets to primary and major arterials. The overall network of thoroughfares is designed to accommodate existing and projected traffic. The MPAH classifications are a statement of policy intended to reserve adequate right-of-way for future highway improvements. Design guidelines and criteria are briefly described for each arterial classification.

2. Purpose

The Arterial Highways Component establishes a countywide highway network intended to ensure coordinated highway development among Orange County governmental jurisdictions. The MPAH also serves as the legally required Circulation Element for the unincorporated area under California Government Code Section 65302(b), and is one of the four components of the Transportation Element of Orange County's General Plan.

The main purpose of the MPAH is to describe an arterial highway system that effectively supports General Plan policies and serves existing and adopted future land uses in both incorporated and unincorporated areas of Orange County. Extensive coordination with the land use planning and implementation processes carried on by the cities of Orange County, the County of Orange, and adjacent jurisdictions is essential for the MPAH to provide its intended service to county motorists.

3. MPAH Consistency Concept

Consistency with the MPAH is essential to the integrity of a functional regional highway network. It ensures that each city implements the same base transportation network using similar standards and assumptions. To aid in establishing consistency among plans, utilization of common land use assumptions and travel demand projections are encouraged by all jurisdictions.

Streets which serve predominantly as local collectors are generally not shown on the County MPAH because they do not contribute materially to regional circulation. Such roads may, however, be locally significant, and therefore may be reflected on a city's Circulation Element. Commuter streets may be added to or deleted from the MPAH subject to the criteria contained in Appendix 5: Criteria for Adding Commuter Arterials to MPAH Map. City plans reflecting such additional arterials are not considered inconsistent with the County MPAH for purposes of AHFP eligibility because the Cities' General Plans are expected to be more responsive to local needs. Commuters currently shown on the MPAH, however, represent vital components of the circulation system where additional capacity is needed to supplement the system in local areas. City plans are expected to include these roadways.

The County and Cities' Circulation plans are reviewed for consistency each year to ensure compatible networks and carrying capacity of the circulation system, and the early detection of possible inconsistencies resulting from General Plan amendments. For example, the designation of a facility on the MPAH is considered consistent with a designation of a lower classification by a city if such designation allows comparable carrying capacity (e.g., a major should be considered comparable to a one-way primary couplet). The consistency review is done in conjunction with the Arterial Highway Financing Program (AHFP). The process and requirements for annual consistency reviews are outlined in the

AHFP Manual. The review process also affords the County the opportunity to discuss with city representatives appropriate classification of specific arterials and the possible need for changes to the County and/or City plans. A matrix showing the County's nomenclature for arterial highways along with functionally equivalent facilities in cities is contained in Appendix 6.

B. CLASSIFICATION

Arterial highways are shown on the MPAH map in the following two forms: 1) established alignments depicted by solid lines on the map, including existing highways where the centerline is the precise centerline, and future highways where the Board of Supervisors, a City Council, or the subdivision process has established a precise alignment; and, 2) conceptually proposed alignments, defined by intermittent lines indicating future facilities whose precise alignment has not yet been determined.

Arterial highways have been divided into classifications to address travel demand needs in terms of capacity to aid in setting consistent design standards countywide for various highway types. Classification consistency is the key objective of the MPAH to ensure that the County as a whole participates in the full network development.

In addition, special intersection approaches for major, primary, and secondary arterials have been identified to help address congestion problems. A concept of the "Maximum Feasible Intersection" (MFI) has been introduced to establish a guideline for intersection enhancement that is compatible with travel demand requirements and operational capabilities of the highway system. Traffic studies, for example, can also be used as a mechanism to identify intersections that may require enhancement above the standard plan specified for that facility. Reservation of right-of-way will, therefore, be required to ensure future implementation of the MFI. Therefore, notwithstanding typical intersection geometrics as identified, additional right-of-way may be required to implement the MFI. The MFI for each classification is defined in the classification description.

1. Transportation Corridor

A transportation corridor is a multi-modal facility of six to ten lanes, depending on projected traffic volumes, and a median of sufficient width to accommodate future options such as fixed rail or high occupancy vehicles. The corridors will provide for efficient movement of vehicular traffic where projected volumes exceed major arterial highway capacities. These routes will be designed to Caltrans freeway and expressway standards and incorporated into that system. Three transportation corridors are planned in Orange County: the San Joaquin Hills Transportation Corridor (SR-73); the Eastern Transportation Corridor (SR-231); and the Foothill Transportation Corridor (SR-241). These corridors, approved in the Surface Transportation and Uniform Relocation Assistance Act passed by Congress in 1987 as Federal toll road pilot projects, are eligible to combine tolls with receipt of

Federal and other sources of revenues. These new corridors are also authorized by State legislation as the State's first toll roads and will remain as pilot "toll" facilities until the bonding is paid. These corridors are to be operated by demand management to ensure a high level of operation, and tolls will be the implementation mechanism to maintain free flow.

Final alignment and environmental studies will define the ultimate route of the proposed corridors. These studies will identify the necessary rights-of-way based on projected traffic volumes and the various transportation modes to be accommodated.

2. Major Arterial

2.1 Eight-Lane Major Arterial

An eight-lane divided roadway, with a typical right-of-way width of 142 feet and a roadway width of 114 feet, curb to curb, including a 14 foot median. An eight-lane major is designed to accommodate between 45,000 to 60,000 vehicle trips per day at Level of Service 'C'.

Maximum Feasible Intersection (MFI)

The standard MFI for an eight-lane major arterial shall consist of four through lanes, two left-turn lanes, a free right-turn lane, and one optional right-turn lane. Alternative geometrics, such as a grade separation or other special treatment, may be considered if they are cost effective and operationally feasible. In review and approval of subdivisions, the objective shall be to reserve adequate right-of-way to permit future implementation of the MFI as warranted.

2.2 Six-Lane Major Arterial

A six-lane major arterial highway is a six-lane divided roadway, with a typical right-of-way width of 120 feet, and a roadway width from curb to curb, including a 14 feet median, of 102 feet (Chart 1-1). A six-lane major is designed to accommodate between 30,000 and 45,000 vehicle trips per day at Level of Service 'C'. Six-lane Major arterials carry a large volume of regional through traffic not handled by the freeway system.

MFI

The standard MFI for a major arterial shall consist of three through lanes, two left turn lanes, and a free right turn lane. Alternative geometrics such as a grade separation or other special treatment may be considered if they are cost effective and operationally feasible. In review and approval

of subdivisions, the objective shall be to reserve adequate right-of-way to permit future implementation of the MFI as warranted.

3. Modified-Major Arterial

A modified-major arterial highway may remain on the County MPAH or a city circulation plan in lieu of a major arterial in already developed areas. A narrower right-of-way for such facility than the 120 feet may be developed but not less than 100-foot, in such cases to accommodate a six-through travel lane divided facility with a capacity of 30,000 - 45,000 vehicles per day at Level of Service 'C'. This requires prohibition of on-street parking and striping for six lanes where practical, parking and bus turnouts shall be provided.

MFI

The standard MFI for a modified-major arterial shall consist of three through lanes, two left-turn lanes, and a free right-turn lane. Alternative geometrics such as a grade separation or other special treatment may be considered if they are cost effective and operationally feasible. In review and approval of subdivisions, the objective shall be to reserve adequate right-of-way to permit future implementation of the MFI as warranted.

4. Primary Arterial

A primary arterial highway is a four-lane divided roadway, with a typical right-of-way width of 100 feet and a roadway width from curb to curb, including a 14 feet median, of 84 feet (Chart 1-2). A primary is designed to accommodate between 20,000 and 30,000 vehicle trips per day at Level of Service 'C'. A primary arterial's function is similar to that of a major arterial. The principal difference is capacity.

MFI

The standard MFI for a primary arterial shall consist of two through lanes, two left turn lanes, and a right turn lane. Alternative geometrics such as a grade separation or other special treatment may be considered if they are cost effective and operationally feasible. In review and approval of subdivisions, the objective shall be to reserve adequate right-of-way to permit future implementation of the MFI as warranted.

5. Modified-Primary Arterial

A modified-primary arterial highway may remain on the County MPAH or a city circulation plan in lieu of a primary arterial in already developed areas. The modified primary arterial highway is a four lane divided roadway with a typical right-of-way of 80 feet. This will require prohibition of on-street parking and striping for four lanes. Where practical, additional right-of-way may be acquired to

provide parking, bus turnouts, or additional traffic channelization features (e.g. deceleration lanes). A modified primary is designed to accommodate 20,000-30,000 vehicles per day at Level of Service 'C'.

MFI

The standard MFI for a modified-primary arterial shall consist of two through lanes, two left-turn lanes, and a right-turn lane. Alternative geometrics such as a grade separation or other special treatment may be considered if they are cost effective and operationally feasible. In review and approval of subdivisions, the objective shall be to reserve adequate right-of-way to permit future implementation of the MFI as warranted.

6. Superstreet (Augmented Arterial)

In addition to the arterial classifications, the MPAH recognizes superstreet "augmented capacity" arterials with an enhanced traffic-carrying capacity. The augmentation in capacity may be achieved by a variety of measures:

- Addition of through or turn lanes
- Preferential traffic signal timing and synchronization
- Loops for left turn
- Removal of on-street parking
- Intersection grade separations
- Grade separated turning movements
- Access limitation - right turns only, or no access (streets and/or driveways)
- Access consolidation
- Frontage roads
- Pedestrian grade separations
- Other elements which may be found useful

The intent of these measures is to minimize conflicts with cross traffic. These measures improve traffic carrying capacity and facilitate improved traffic flow along an arterial. Hence, the terms "High Flow Arterial" or "Continuous Flow Boulevard" can also be used to describe a "superstreet." This designation is intended to represent a roadway of a primary or major arterial classification.

7. Secondary Arterial

A secondary arterial highway is a four-lane undivided (no median) roadway, with a typical right-of-way width of 80 feet, and a roadway width from curb to curb of 64 feet (Chart 1-3). A secondary is designed to accommodate between 10,000 and 20,000 vehicle trips per day at level of service 'C'. A secondary arterial serves as a collector, distributing traffic between local streets and major and primary arterials. Although some secondary arterials serve as through routes, most provide more direct access to surrounding land uses than major or primary arterials.

MFI

The standard MFI for a secondary arterial shall consist of two through lanes, one left turn lane, and a right turn lane. Alternative geometrics such as a grade separation or other special treatment may be considered if they are cost effective and operationally feasible. In review and approval of subdivisions, the objective shall be to reserve adequate right-of-way to permit future implementation of the MFI as warranted.

8. Commuter Arterial

A commuter arterial highway is a two-lane undivided, unrestricted access roadway, with a typical right-of-way width of 56 feet and a roadway width from curb to curb of 40 feet (Chart 1-4). A commuter is provided to accommodate up to 10,000 vehicle trips per day at level of service 'C'. By strict definition, a commuter facility is not an arterial highway. It functions primarily as a collector facility. It differs from a local collector street in its ability to handle through traffic movements between two arterials. It is shown on the MPAH because it provides network continuity, or may serve through traffic demand where projected volumes do not warrant a secondary. As such, it is shown on the MPAH only when it is of regional significance and meets certain threshold criteria defined in Appendix 5: Criteria for Adding Commuter Arterials to MPAH Map.

9. Intersection Condition

Intersection performance is the most critical factor in determining traffic conditions on arterials. The following identifies two intersection conditions that should be considered in the planning process to improve traffic flow conditions in the arterial highway system.

Deficient Intersection

A deficient intersection is one that is currently operating at worse than LOS 'D' as a result of factors outside the control of the jurisdiction (e.g., ramp metering), and which cannot be improved to LOS 'D' solely by fees or improvements provided by new development. Typically these intersections are built to their MFI and include those arterials providing access to the freeway. Level of Service is to be calculated using Intersection Capacity Utilization (ICU) methodology.

Congested Intersection

A congested intersection is one that does not currently meet acceptable Traffic Level of Service policies of the jurisdiction in which it is located and is not built to its MFI. The intersection

and associated traffic should also be within the sole control of that jurisdiction. Level of Service is to be calculated using Intersection Capacity Utilization (ICU) methodology.

10. Other Facilities and Considerations

State freeways are shown on the MPAH map for reference only. Although maintained and operated by Caltrans, these freeways are an integral part of the countywide transportation system. Coordination between the County, Caltrans, Orange County Transportation Commission, and local jurisdictions concerning planning and improvements to these facilities is essential to meeting regional traffic needs.

The typical sections depicted on the MPAH legend, and on Charts 1 and 2 are simplified diagrams based upon adopted Orange County Standard Plans. Notwithstanding these arterial highway specifications, additional right-of-way may be required for any classification when an arterial highway coincides with an adopted route for an additional public facility (e.g., transit facilities, bikeways, or riding and hiking trails), or a scenic highway.

The "right-of-way reserve" designation on the MPAH indicates that origin-destination needs have been projected in the area, but ultimate carrying capacity requirements have not been determined. This status is applied to facilities where the classification is uncertain due to potentially significant land use changes or network continuity needs. A route designated "right-of-way reserve" requires design and right-of-way sufficient to construct a major arterial highway. Any refinements to the underlying classification would occur in conjunction with the land use planning process. The "right-of-way reserve" designation allows right-of-way flexibility to meet potential changes in the Land Use Element.

C. GOALS, OBJECTIVES AND POLICIES

Goals, objectives and policies are intended to serve as countywide guidelines and provide direction to transportation implementation in the County's unincorporated areas.

1. GOAL: TO PROVIDE AN ARTERIAL HIGHWAY NETWORK WHICH SERVES AS THE COUNTYWIDE ROADWAY COMPONENT OF A BALANCED TRANSPORTATION SYSTEM.

Objectives:

- 1.1 To plan, develop and implement a circulation system that is consistent with the Master Plan of Arterial Highways.
- 1.2 To plan and develop a system which interfaces with, and is complementary to, the existing and planned state freeway, highway, and tollway system.

- 1.3 To plan, develop and implement a circulation system that responds to approved land uses and satisfies the circulation system needs of all local jurisdictions in the County.
- 1.4 To develop an arterial highway network which facilitates and complements transportation system management programs and minimizes single occupant vehicles on the roadway system.
2. GOAL: TO PROVIDE AN ARTERIAL HIGHWAY SYSTEM WHICH SUPPORTS LAND USE POLICIES OF THE COUNTY AND CITIES.

Objectives:

- 2.1 To establish a coordinated arterial highway system which accommodates city and county land uses.
- 2.2 To coordinate land use plans to ensure that circulation systems are not overloaded.
- 2.3 To establish an arterial highway system designed to serve as part of a balanced transportation system (auto, rail, transit, bus, truck, bicycle, pedestrian, etc.).
- 2.4 To develop a countywide program to annually monitor arterial highway conditions at intersections to ensure that an acceptable level of service (LOS) is maintained.
- 2.5 To develop a circulation phasing plan to ensure that adequate roadway capacity is available on the circulation network to accommodate increments of new development.
3. GOAL: TO PROVIDE FOR SAFE, CONVENIENT AND EFFICIENT MOVEMENT OF PEOPLE AND GOODS.

Objectives:

- 3.1 To provide an arterial highway system capable of meeting the continuing need to move people and goods by private and public means, with maximum efficiency, convenience, economy, safety, and comfort.
- 3.2 To establish minimum roadway specifications necessary to ensure safe movement of vehicles and other modes of transportation.
4. GOAL: TO PROVIDE A CIRCULATION SYSTEM WHICH CONFORMS TO APPLICABLE ENVIRONMENTAL QUALITY STANDARDS.

Objectives:

- 4.1 To assure that development of new arterial highways is sensitive to the character of communities and neighborhoods throughout the County and is responsive to the needs of the environment.

- 4.2 To encourage local jurisdictions to require a regional transportation impact analysis for projects having measurable impacts on existing and future congested regional transportation facilities.
- 4.3 To plan and develop, through design and alignment studies, roads in a manner which minimizes impacts associated with crossing of flood plains or drainage courses; known earthquake fault zones; wildlife, unique geological, and resource conservation and open space areas; and currently designated agricultural areas.
- 4.4 To provide an arterial highway system which, to the extent practical, is compatible with the physical environment, enhances the environmental quality, and preserves the natural resources of the County.
- 5. GOAL: TO REDUCE PEAK HOUR TRAFFIC CONGESTION AND ENSURE ACCEPTABLE LEVEL OF SERVICE (LOS) ON EXISTING AND FUTURE MASTER PLAN OF ARTERIAL HIGHWAY FACILITIES.

Objectives:

- 5.1 To develop, with input and involvement from local jurisdictions, a uniform standard for acceptable LOS on arterial highways (intersections) countywide and consensus on methodology to determine the LOS.
- 5.2 To develop a uniform standard for traffic analysis countywide, but flexible enough to allow the unique needs of local communities to be taken into consideration.
- 5.3 To develop a countywide "Congested Intersection List." This will include intersections which do not meet the standards established in 5.1 above. This list shall be updated annually.
- 5.4 To develop a financial mechanism such as trust funds, in coordination with appropriate funding agencies such as OCTC, to implement necessary improvements to links and intersections identified in 5.1.
- 5.5 The circulation system shall be implemented in a manner which achieves the established Traffic Level of Service Policy pursuant to the applicable Growth Management Plan (GMP) Element. Appendix 3: GMP Transportation Implementation Manual contains traffic LOS policies applicable to County unincorporated areas.

6. GOAL: NOTWITHSTANDING THE "MODIFIED" FACILITIES DESIGNATION ON THE MPAH, THE GOAL IS TO DEVELOP HIGHWAYS TO THEIR FULL CROSS SECTION WHENEVER RIGHT-OF-WAY BECOMES AVAILABLE THROUGH MAJOR REDEVELOPMENT PROGRAMS AND TO DISCOURAGE PLACEMENT OF ADDITIONAL MODIFIED CLASSIFICATIONS ON THE MPAH.

Objectives:

- 6.1 To evaluate currently designated "modified" facilities annually to ensure that they are consistent with established criteria.
 - 6.2 To find "modified" highway designations consistent with the MPAH, for the purposes of AHFP review, providing they meet the established criteria.
 - 6.3 To find "modified" highway designations consistent with the MPAH when the established criteria is unmet if the local jurisdiction has made every practical effort to comply with the criteria and the local jurisdiction demonstrates to County's satisfaction that compliance is unfeasible.
7. GOAL: TO REDUCE PEAK HOUR VEHICLE DEMAND THROUGH THE IMPLEMENTATION OF POLICIES AND PROGRAMS THAT MINIMIZE SINGLE-OCCUPANT VEHICLES AND TRIP LENGTH ON THE COUNTYWIDE ROADWAY SYSTEM.

Objectives:

- 7.1 To develop and promote a transportation system and strategies that are consistent with Regulation XV of the South Coast Air Quality Management District.
- 7.2 To develop countywide Park-N-Ride facilities to integrate multi-modal transportation facilities.
- 7.3 To promote and facilitate ridesharing activities, preferential parking, park and ride lots, in-vehicle driver information, operational improvements, flexible working hours and other traffic reduction strategies.
- 7.4 To promote and facilitate, especially in newly developed areas, an improved job/housing balance as a means to reduce trip length and total travel demand in the County.
- 7.5 To require developers of more than 100 dwelling units, or 25,000 square feet of non-residential uses to: a) demonstrate consistency between the local transportation

facilities, services, and programs, and the regional¹ transportation plan; and b) to submit, as part of their development proposal (non-residential), a Transportation System Management/Transportation Demand Management (TSM/TDM) plan which includes strategies, implementation programs and an annual monitoring mechanism to ensure a reduction of single occupant automobile travel associated with development.

Policies:

Traffic Impact Fees: To establish "traffic impact fees" for application to any development projects with measurable traffic impacts. These may serve as local matching funds for state and federal highway funding programs.

Traffic Improvement Plans: To encourage all local jurisdictions to adopt comprehensive traffic improvement, phasing and financing plans, consistent with an adopted Growth Management Plan, in order to assist in countywide implementation of the MPAH.

Interagency Coordination: To coordinate with Caltrans, Orange County Transportation Commission, and the Transportation Corridor Agencies on various studies relating to freeway, tollway and transportation corridor planning, construction, and improvement.

Cooperative Studies: To coordinate planning of the arterial highway system, through the cooperative studies process, with Orange County cities, Orange County Transportation Commission, Orange County Transit District and adjacent counties.

Cooperative Implementation: Where appropriate, to coordinate with cities through the cooperative study process, the implementation of needed measures to provide for necessary channelization, high occupancy vehicle lanes, emergency or additional travel lanes, or bicycle lanes, whenever warranted and feasible.

MPAH: To work with cities through the Arterial Highway Financing Program and other funding programs to implement the MPAH and foster interagency cooperation towards anticipating and effectively meeting the regional transportation needs of the County and its cities.

Transportation Demand Management: To coordinate with the Orange County Transportation Commission, Orange County Transit District, local jurisdictions, the development industry, and the business community to plan and implement transportation demand management policies and programs. Multi-jurisdictional cooperation is needed

1. Current regional transportation plan is that developed by SCAG. This may change in the future, if SCAG's role in the County changes.

to determine the degree to which the use of alternative modes and modified work schedules can reduce deficiencies along arterial highway corridors, and in designing policies and programs that can accomplish these reductions.

Analytical Methods: To encourage use of uniform analytical methods to aid in transportation planning and impact evaluation and support the development and utilization of sub-area models to address detailed transportation issues.

Projections: To use adopted Orange County Preferred (OCP) forecasts for all projections of future year population, housing, employment, and other socioeconomic data to assure consistency among other General Plan Elements.

Regional Traffic Forecast: To use Orange County Transportation Analysis Modeling (OCTAM) forecasts as the regional traffic forecast for the County, and as a basis for data required in subarea studies conducted by others.

High-Flow Arterial Corridors: To undertake appropriate studies to analyze a network of high flow arterial corridors designed to complement the existing and proposed system of freeways and transportation corridors.

Land Use Compatibility: To evaluate proposed Land Use Element amendments and phasing plans for major development projects to ensure maintenance of acceptable Levels of Service on arterial highway links and intersections.

Implementation: To implement the arterial highway system in a manner that supports the implementation of adopted, overall land use development policies and which is consistent with financing capabilities.

Funding: To maximize use of existing, available funding sources (i.e., federal, state and local), and to develop and support the formulation of new funding mechanisms to implement necessary transportation facilities.

Traffic Level of Service Policy: To require, within three years of the issuance of the first use and occupancy permit for a development project, or within five years of the issuance of a finished grading permit or building permit for a development project, whichever occurs first, that the necessary improvements to arterial highway facilities, to which the project contributes measurable traffic, be constructed and completed to attain Level of Service (LOS) 'D' at the intersections under the sole control of the County. Los 'C' shall also be maintained on Santiago Canyon Road links until such time as uninterrupted segments of the roadway (i.e., no major intersections) are reduced to less than three miles. For a detailed discussion of LOS policies, refer to Appendix 3: Growth Management Plan Transportation Implementation Manual.

Traffic Improvement/Phasing Programs: To ensure that all new development provides necessary transportation facilities and intersection improvements as a condition of development approval, and that circulation improvements are built to accommodate each phase of development. Comprehensive traffic improvement programs shall be established. Participation in such programs shall be on a pro-rata basis and be required of all development projects except where an increased level of participation, exceeding these requirements, is established through negotiated legal mechanisms.

Reclassification: A reduction in classification of a roadway from one side of an intersection to the other is made by transitioning the higher classification to the lower classification over a 600 foot section beyond the intersection.

D. IMPLEMENTATION PROGRAMS

- 1. Subdivision Conditions of Approval**
- 2. Assessment District**
- 3. Major Thoroughfare and Bridge Fee Programs**

Five major thoroughfare and bridge fee programs have been established by the County to fund roadway improvements and to assist in implementing the MPAH. The fee programs include:

a. Foothill Circulation Phasing Plan

The Foothill Circulation Phasing Plan (FCPP) Program Financing Plan contemplates construction of, among other items: a \$240 million system of arterial road improvements, a portion of the Foothill Corridor, and intersection improvements designed to alleviate existing traffic problems while providing for development in the Foothill Area of southeast Orange County; and a development phasing plan which ties building permit issuance to achievement of road construction milestones and which limits, in effect, new residential construction to seventy-seven percent of existing County General Plan approvals. The FCPP was adopted by the Board of Supervisors on October 14, 1987.

b. Coastal Area Road Improvements and Traffic Signals

The Coastal Area Road Improvements and Traffic Signals (CARITS) Fee Program is a financing plan for the construction and improvement of roadways and intersections in the south county coastal area. This program will raise \$56.4 million to fund the construction of 13 roadway sections (31 lane-miles), improvements to 6 intersections, and installation of traffic signals at 29 locations. CARITS was adopted by the Board of Supervisors on December 14, 1988.

c. El Toro Road Fee Program

The El Toro Road Fee Program was adopted in May of 1982. This financing program is intended to raise \$2.9 million for upgrading El Toro Road between Trabuco Road and Live Oak Canyon Road to its 1982 Master Plan of Arterial Highways designation as a primary arterial. It should be noted that the classification has since been increased to a major arterial, but the additional lanes will be the responsibility of new development and the County.

d. Moulton Parkway/Laguna Niguel Fee Program

The Moulton Parkway/Laguna Niguel Fee Program, adopted January 7, 1987, will generate a total of \$15.9 million in revenues to construct arterial highway improvements in the Laguna Hills and Laguna Niguel areas. Two studies define the improvements and costs to be funded through this fee program. The Moulton Parkway Feasibility Study defines \$13.5 million in improvements to Moulton Parkway, from Lake Forest Drive to Crown Valley Parkway, to be funded by this program. The Laguna Niguel Comprehensive Traffic Study identifies \$2.4 million in improvements to intersections along Crown Valley Parkway and Street of the Golden Lantern, among others, to be funded by this fee program.

e. Plano Trabuco Area Road Fee Program

The Plano Trabuco Area Road Fee Program was adopted in October, 1983 by the Board of Supervisors. The fee program was established to provide funding for the extension of Alicia Parkway and Santa Margarita Parkway across Trabuco Creek to Plano Trabuco Road, and an expansion of the Santa Margarita Parkway bridge over Trabuco Creek. The cost of these improvements is estimated at \$13.4 million.

f. Santiago Canyon Road Financing and Implementation Plan

Formulation of a financing plan to fund improvements to Santiago Canyon Road between Chapman Avenue and Live Oak Canyon Road is being developed. This project is intended to meet the demands of increasing commuter traffic from the rapidly developing foothill communities.

4. Arterial Highways Financing Program

The Arterial Highway Financing Program (AHFP) is a County administered program established in 1958 as a cooperative program between the County and Orange County cities. Under this program, the County makes available approximately \$4.0 million in State gas tax funds on a matching basis to cities which meet certain AHFP

eligibility criteria for circulation improvements. The process requires cooperative studies to resolve inconsistencies between city arterial highway plans and the MPAH as contained in the Arterial Highway Financing Program Manual.

5. Orange County Unified Transportation Trust

The Orange County Unified Transportation Trust (OCUTT) Streets and Roads Programs is a temporary program built upon funds generated by the interest on the rapid transit savings account. These funds are allocated to cities, the County, and Caltrans for local streets and roads, arterials, freeways, and highway improvement projects. This program is currently administered by the Orange County Transportation Commission. Once the expenditures of the transit fund begin, this funding program may terminate.

6. Combined Road Program

Combined Road Program (CRP) policy has been established since June 1, 1989, according to Section 137 of the Federal Surface Transportation and Uniform Relocation Assistance Act of 1987, (Public Law 100-17). CRP funds combine resources that were for the Federal Aid Urban (FAU), Federal Aid Secondary (FAS) and Highway Bridge Replacement and Rehabilitation Program (HBRR) categories and are available for roadway construction, safety projects, capacity projects, bikeways, pedestrian walkways, transit projects, and activities to promote carpool, vanpool, and other para-transit activities. This program is administered for the State by the statewide CRP committee and locally by the Orange County Transportation Commission.

7. County Gas Tax

8. Road Improvement Monitoring

a. Development Monitoring Program (DMP)

The County Administrative Office (CAO), in cooperation with the Environmental Management Agency (EMA), prepares the County's Annual Development Monitoring Program which contains an analysis of existing and future system-wide circulation conditions. Also included are recommendations on improving Levels of Service.

b. Annual Monitoring Reports (AMR)

This is a detailed annual analysis of traffic conditions at intersections impacted by development in unincorporated South County. The analysis is included in the Development Monitoring Program and is done for horizons of three and five years. The report also contains specific mitigations that are necessary to ensure LOS consistent with standards specified in the Growth Management Plan Element.

c. Development Agreement Implementation Program

To date, the County has entered into 20 Development Agreements with major South County developers. Each contains specific infrastructure improvements, including roadways, to be completed by the developer by certain development milestones. A Development Agreement Implementation Program has been established to define and clarify the benefits obtained through these agreements. This program is administered by the Planning Function of EMA.

d. Facility Implementation Program

This is a compendium of the five Growth Management areas of the County (unincorporated area) which shows all infrastructure improvements planned in each area for the next several years.

9. Transportation Demand Management Programs

a. AQMD Regulation XV

The South Coast Air Quality Management District adopted Regulation XV in December, 1987. Regulation XV requires every employer of 100 or more employees at any work site to prepare and implement annual trip reduction plans. The purpose of the plan is to reduce the number of vehicle trips used for work commuting during peak hours. The target for employers in Orange County is to achieve an average vehicle ridership (AVR) of 1.5 employees per vehicle.

b. Transportation Management Associations/Organizations

Several transportation management associations/organizations, such as Irvine Spectrum Transportation Management Association (Spectrumotion), Newport Center Transportation Management Association (Centeride), South Coast Metro Transportation Management Association, Irvine Transportation Authority, Cypress Transportation Management Association, North Orange County Transportation Management Association and Newport Beach Transportation Resource Center, have been formed in major activity centers to enhance the effectiveness of transportation demand management strategies.

TYPICAL SECTION

MAJOR – 120'
(6 LANES, DIVIDED)



Chart 1-1

PRIMARY – 100'
(4 LANES, DIVIDED)

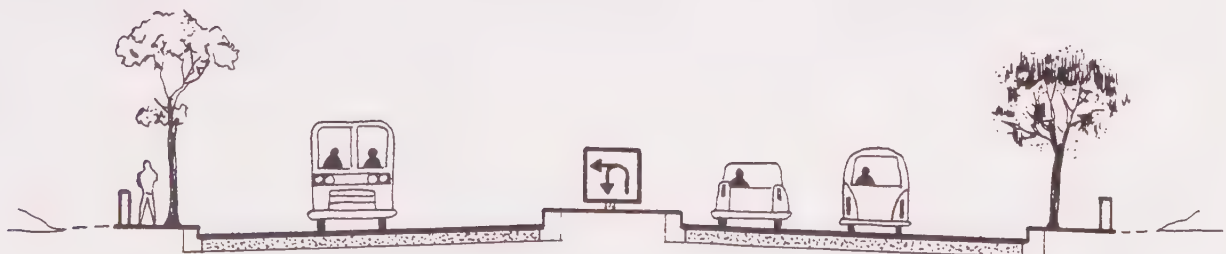


Chart 1-2

TYPICAL SECTION

SECONDARY - 80' (4 LANES, UNDIVIDED)

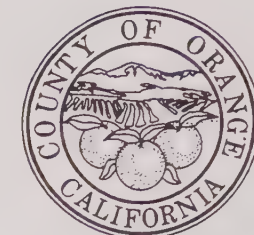
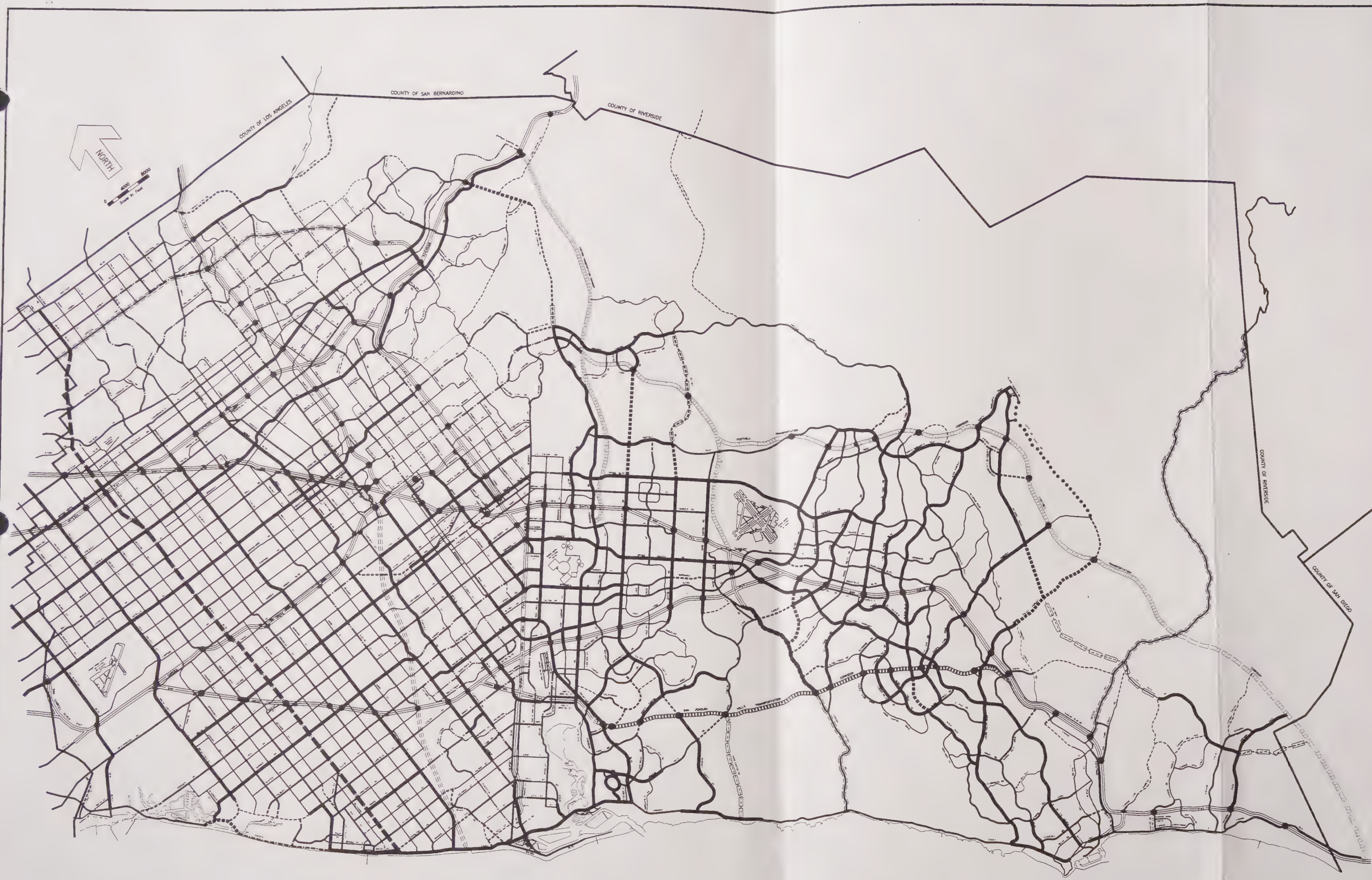


Chart 1-3

COMMUTER - 56' (2 LANES, UNDIVIDED)

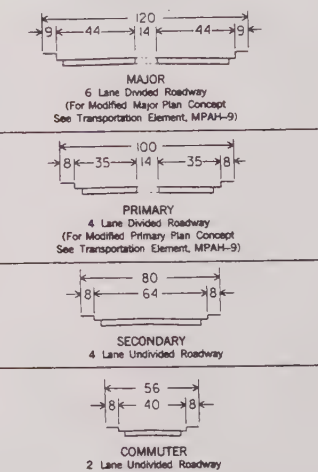


Chart 1-4



	ESTABLISHED ALIGNMENT	CONCEPTUALLY PROPOSED
MAJOR		
MODIFIED MAJOR		
PRIMARY		
MODIFIED PRIMARY		
SECONDARY		
COMMUTER		

TYPICAL SECTION



EXTRA RIGHT-OF-WAY MAY BE REQUIRED WHEN AN ARTERIAL HIGHWAY COINCIDES WITH AN ADOPTED ROUTE FOR AN ADDITIONAL PUBLIC FACILITY (EX. PEDESTRIAN, BICYCLE, OR EQUESTRIAN TRAIL), OR FOR A SCENIC HIGHWAY. DOWNGRADING IN CLASSIFICATION IS MADE BY TRANSITIONING FOR APPROXIMATELY 600 FEET, WITH THE HIGHER CLASSIFICATION CARRIED THROUGH AN INTERSECTION.

	ESTABLISHED ALIGNMENT	CONCEPTUALLY PROPOSED
TRANSPORTATION CORRIDOR		
RIGHT-OF-WAY RESERVE		
SUPERSTREETS		
STATE FREEWAYS		
INTERCHANGE		

STATE FREEWAYS ARE SHOWN FOR REFERENCE PURPOSES ONLY.

PRIVATE STATUS ARTERIALS *****

FOR FURTHER INFORMATION, REFER TO THE TRANSPORTATION ELEMENT OF THE ADVANCE PLANNING PROGRAM AND THE ORANGE COUNTY STANDARD PLANS.

NOTE: THE GENERAL PLAN MAY BE AMENDED FOUR TIMES PER YEAR. USERS ARE CAUTIONED TO CHECK FOR SUBSEQUENT AMENDMENTS.

MAP 1-1: MASTER PLAN OF ARTERIAL HIGHWAYS

County of Orange, California
Transportation Planning, Environmental Management Agency

CERTIFICATION

I HEREBY CERTIFY THAT THE MASTER PLAN OF ARTERIAL HIGHWAYS COMPONENT, CONSISTING OF THE GENERAL LOCATION AND EXTENT OF EXISTING AND PROPOSED MAJOR THOROUGHFARES, WAS PREPARED UNDER MY DIRECT SUPERVISION AND RECOMMENDED FOR ADOPTION.

Ken R. Smith
KEN R. SMITH, RCE 22438 (EXP 9-30-93)
DIRECTOR, TRANSPORTATION FUNCTION

I HEREBY CERTIFY THAT THE RECOMMENDED MASTER PLAN OF ARTERIAL HIGHWAYS WAS APPROVED AS THE OFFICIAL MAP OF THE TRANSPORTATION ELEMENT OF THE GENERAL PLAN BY THE ORANGE COUNTY PLANNING COMMISSION ON JANUARY 14, 1992, AND ADOPTED BY RESOLUTION NUMBER 92-145 OF THE ORANGE COUNTY BOARD OF SUPERVISORS ON FEBRUARY 31, 1992.

Michael M. Ruane
MICHAEL M. RUANE, DIRECTOR
ENVIRONMENTAL MANAGEMENT AGENCY

Transportation Element Amendment 92-1

COMPONENT TWO

MASTER PLAN OF COUNTYWIDE BIKEWAYS

MASTER PLAN OF COUNTYWIDE BIKEWAYS COMPONENT

A. OVERVIEW

Since the adoption of the initial Countywide Bikeways Element in 1971, traffic congestion, air pollution and energy costs have become more serious problems, and the bicycle has become a practical alternative mode of transportation. The Orange County Board of Supervisors established a similar policy emphasis on September 23, 1980 when the Master Plan of Countywide Bikeways (MPCB) was transferred from the Recreation Element to the Transportation Element of the General Plan.

Comprehensive planning efforts will help the bicycle reach its full potential as an alternative transportation mode for commuting, shopping as well as for recreation. The Master Plan of Countywide Bikeways defines goals, policies and objectives as well as implementation programs involved in the planning, design and construction of an integrated system of regional bicycle facilities. The emphasis is placed on bicycle routes which complement other transportation modes (e.g., transit, carpool, etc.) to serve places of employment and commercial districts.

Another purpose of the MPCB is to serve the recreational objectives of bicycling. This is done in concert with other Countywide recreational programs such as regional parks and riding and hiking trails.

The Master Plan of Countywide Bikeways Component provides the policies and practices which help to define the role of bicycle travel within Orange County. The MPCB defines a network of regional bikeways which interfaces with and complements adjacent Countys' and local (city) bike routes. The Master Plan of Countywide Bikeways supports General Plan policies and covers both the incorporated and unincorporated areas of Orange County. Coordination of the plan's development and implementation with the various cities of Orange County is an important part of the process.

B. CLASSIFICATION

The Master Plan of Countywide Bikeways (Map 2-1) indicates the general location and classification of all existing and proposed, officially adopted regional bikeways in Orange County. The CalTrans Highway Design Manual can be referenced for clarification and specific detail on design speeds, signing, striping and other related design issues. This document has been modified for adoption by EMA in the Orange County Highway Design Manual (Appendix 9). The basis for the design of bikeways in Orange County shall be, in order of precedence, Chapter 1000 of the Orange County Highway Design Manual, followed by Chapter 1000 of the CalTrans Highway Design Manual. Additional information can be found in the County's adopted Standard Plans. Laws pertaining to

the use of bicycles and trail facilities can be found in the Vehicle Code of the State of California. Following is a description of the characteristics of Class I, II and III bikeways.

1. Class I Bikeway (Bicycle Trail)

A Class I bicycle trail is a facility which is physically separated from a roadway and designated primarily for the use of bicycles. Crossflows by pedestrians and motorists are to be minimized. However, where significant pedestrian traffic can be anticipated on a two-way Class I (off-road) bicycle trail, a design standard for combined pedestrian/bicycle traffic is provided in Section 1003.1 (1) of Appendix 9: Bikeway Planning and Design. Bicycle trails typically serve corridors not served by streets and highways, or where sufficient right-of-way exists to construct a separate facility parallel to the roadway. They can provide both recreational and commuter opportunities. These facilities can often serve to bridge gaps in the system caused by man-made or natural barriers. They often utilize abandoned railroad rights-of-way, utility easements, flood control channels, parks and similar linear open space corridors.

2. Class II Bikeway (Bicycle Lane)

A Class II bicycle lane is a facility featuring a striped lane on the paved area of a road for preferential use by bicycles. It is located along the edge of the paved area outside the motor vehicle travel lanes and shall be restricted to parking. Where sufficient pavement width exists, it may be located between a parking lane and the outside motor vehicle travel lane. Section 1003.2 (1) of Appendix 9: Bikeway Planning and Design provides for a typical width of 8 feet for a Class II bikeway on a curbed street, and specifies that additional width be provided where parking is anticipated. On arterial highways in the County's unincorporated areas where a Class II trail is designated on the MPCB, parking shall be prohibited where insufficient width exists to accommodate both parking and bicycle lanes, in addition to the required number of vehicular travel lanes. A bike lane serves to differentiate the right-of-way assigned to bicyclists and motorists, and provides for more predictable movements by each. A bike lane is typically identified by black and white "Bike Lane" signs (Sign type "R81", State of California Uniform Sign Chart), special lane striping, and may have "Bike Lane" stencils on the pavement. Bike lanes are one-way facilities intended to be ridden in the same direction as adjacent motor vehicle flow.

3. Class III (Bicycle Route)

A Class III bicycle route is a facility typically identified by green and white (Type "G93") "Bike Route" guide signing only. There usually are no special lane designations, and parking may be permitted. Bicycle traffic may share either the roadway with motor vehicles, or a sidewalk with pedestrians and, in either case,

bicycle usage is considered secondary. Bike routes are established as a means to connect otherwise discontinuous segments of Class I or Class II bikeways.

4. Undetermined

A bikeway route designated on the MPCB map as "Undetermined" indicates that the ultimate trail category or classification, and/or its alignment has not yet been determined or officially adopted due to topographical or right of way constraints, or other considerations.

C. GOALS, OBJECTIVES AND POLICIES

This section provides guidance regarding the Countywide Bikeways Component of the Transportation Element.

1. GOAL: TO DEVELOP AND IMPLEMENT A COMPREHENSIVE BIKEWAY PLAN THAT MAXIMIZES THE OPPORTUNITIES FOR NON-MOTORIZED VEHICLE TRANSPORTATION AND MEETS THE RECREATION AND LOCAL TRANSPORTATION NEEDS OF THE CITIZENS OF ORANGE COUNTY.

Countywide Objectives:

- 1.1 To develop a bikeway network which provides non-motorized alternatives for commuter travel as well as recreational opportunities.
- 1.2 To develop a bikeway network which maximizes the safety and convenience of users of all levels of experience within that system.
- 1.3 To promote coordination among the County, its cities, and other agencies in providing an integrated bikeway system.
- 1.4. To review and update the MPCB as needed in order to assure compatibility with the other elements of the County General Plan, and with city plans, and to assure an integrated system of bikeways with adjacent counties.
- 1.5 To actively seek all available means of financing bikeways including State and Federal grants.

Policies:

Commuting: To design regional bicycle routes to connect residential areas with major activity centers (employment, educational, civic, etc.) by requiring, through the subdivision process, the dedication of right-of-way and construction of Master Plan designated bikeways as conditions of development.

Recreation: To plan bicycle routes to facilitate access to recreational areas such as regional parks, beach areas, and major tourist commercial/ recreational facilities (Disneyland, Knott's, etc.).

System Connectivity: To plan a bikeway network to interface with other modes of transportation (train or transit stations and Park-N-Ride lots, etc.) in order to encourage and support the use of bicycling and reduce the use of motor vehicles.

Modal Interaction: To encourage other modes of transportation (buses, trains, etc.) to plan for, and provide space for carrying recreational and commuting bicyclists on public transportation systems where feasible.

Scenic Value: To locate regional bikeways along designated scenic highways wherever environmentally, physically, or economically feasible, and to encourage the development of scenic vista points and rest areas where feasible and appropriate.

Right-of-Way: To utilize existing and abandoned public rights-of-way along flood control channels, parks, and roads, and utility and railroad rights-of-way wherever possible, and where a need can be demonstrated to construct bikeways.

Public Information: To provide bicycle trail and safety information to the public by publishing bike trail maps and representing the County at trade shows, rideshare fairs, etc.

Off Road Needs: To develop guidelines for the safe use of "mountain bikes", and to identify suitable areas for their use, including regional parks, in cooperation with EMA/Harbors, Beaches and Parks, in order to reduce the potential for conflicts with other trail users, and in recognition of the growing popularity of this mode of recreation.

Design Standards: To design and construct regional bikeways in accordance with County and CalTrans standards in order to maximize safety and minimize potential conflicts with pedestrians and motor vehicles.

Bicycle Safety: To separate bicycle and automobile traffic wherever possible, taking into consideration safety, users of the facility, economic factors, and physical feasibility; and to design only one-way bike lanes, thereby minimizing conflicts at intersections and reducing the hazards of bicyclists traveling against traffic.

User Convenience: To encourage the provision of bicycle racks, showers, lockers and other storage facilities at destinations where practical and economically feasible when reviewing discretionary permits for major activity centers.

Trail Network: To plan, develop, and maintain a network of countywide regional trails in both incorporated and unincorporated areas, through cooperative efforts with cities.

Regional Continuity: To encourage other jurisdictions to adopt a system of bikeways that complements the County system.

Regional Consistency: To periodically revise the Master Plan of Countywide Bikeways component of the Transportation Element, when warranted, to reflect changing conditions, and to evaluate proposed development projects for compatibility with the MPCB through the subdivision, and discretionary permit review process.

Funding: To solicit and utilize all sources of local, regional, State and Federal funds to plan, acquire right-of-way, and construct bikeways, including such sources as SB 821, and SB 244 (CalTrans Bike Lane Account) funds; County Road, and Harbors, Beaches and Parks funds; and private grants.

Development Commitment: To encourage developers to provide local bicycle trails, as well as require construction of applicable MPCB bikeways within their projects as conditions of development approval.

D. IMPLEMENTATION PROGRAMS

1. Subdivision Process

Programs involve a review of subdivision maps for consistency with the MPCB, and a requirement that new developments dedicate necessary right-of-way, and develop bikeway facilities according to MPCB classification and design specifications.

2. Funding

Regional bikeway funding programs (SB 821 and SB 244, etc.) accord priority to those projects which improve bicycle access to employment centers, educational facilities, and commercial developments, as well as to recreational areas.

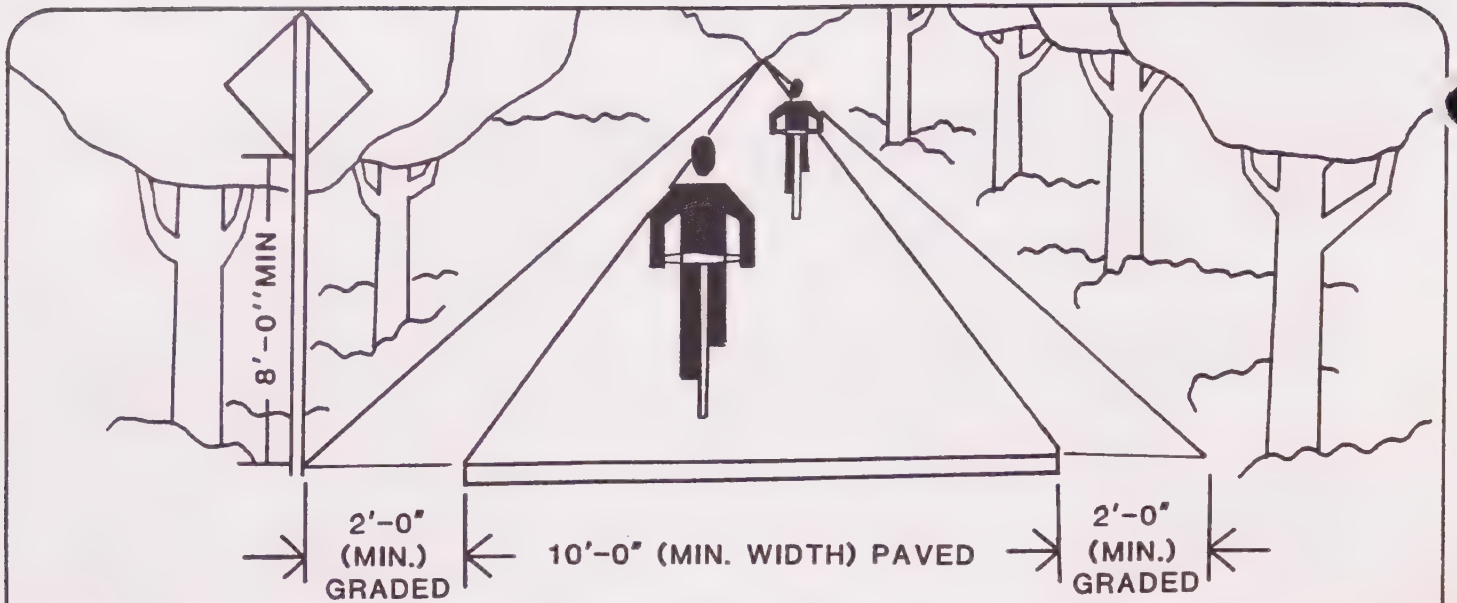


Chart 2-1

TWO-WAY BIKE PATH ON SEPARATED RIGHT-OF-WAY

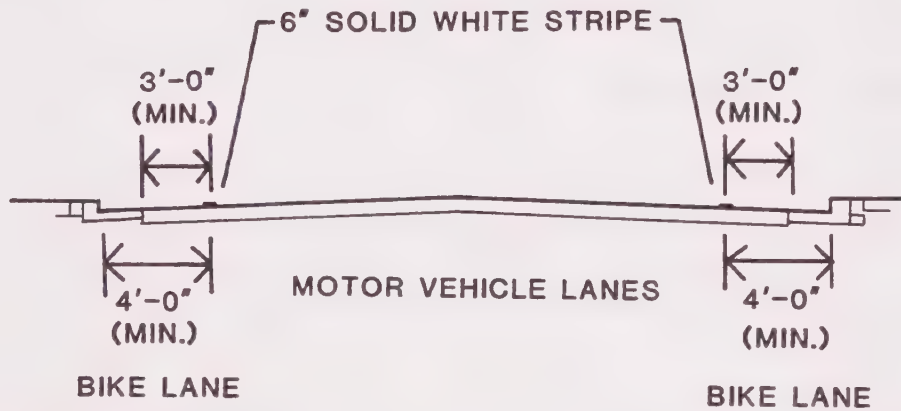


Chart 2-2

BIKE LANE PARKING PROHIBITED

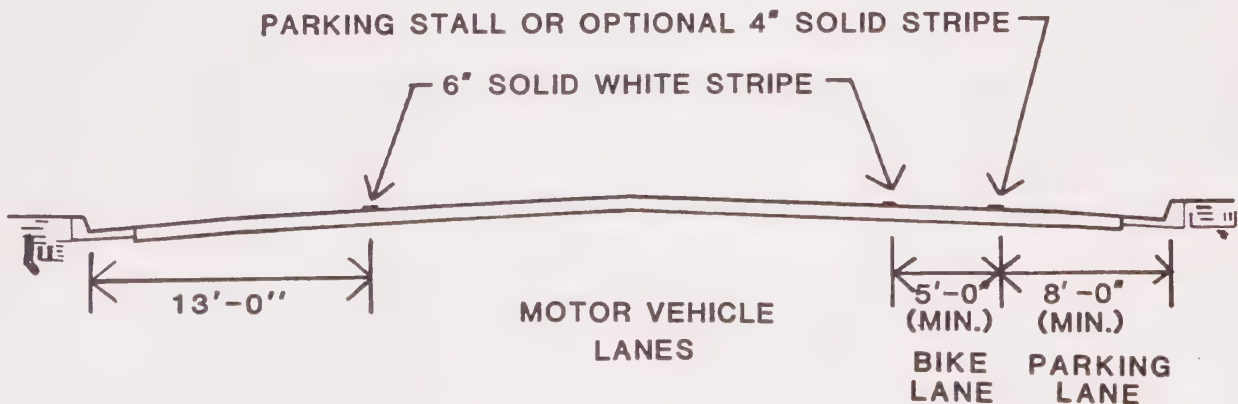
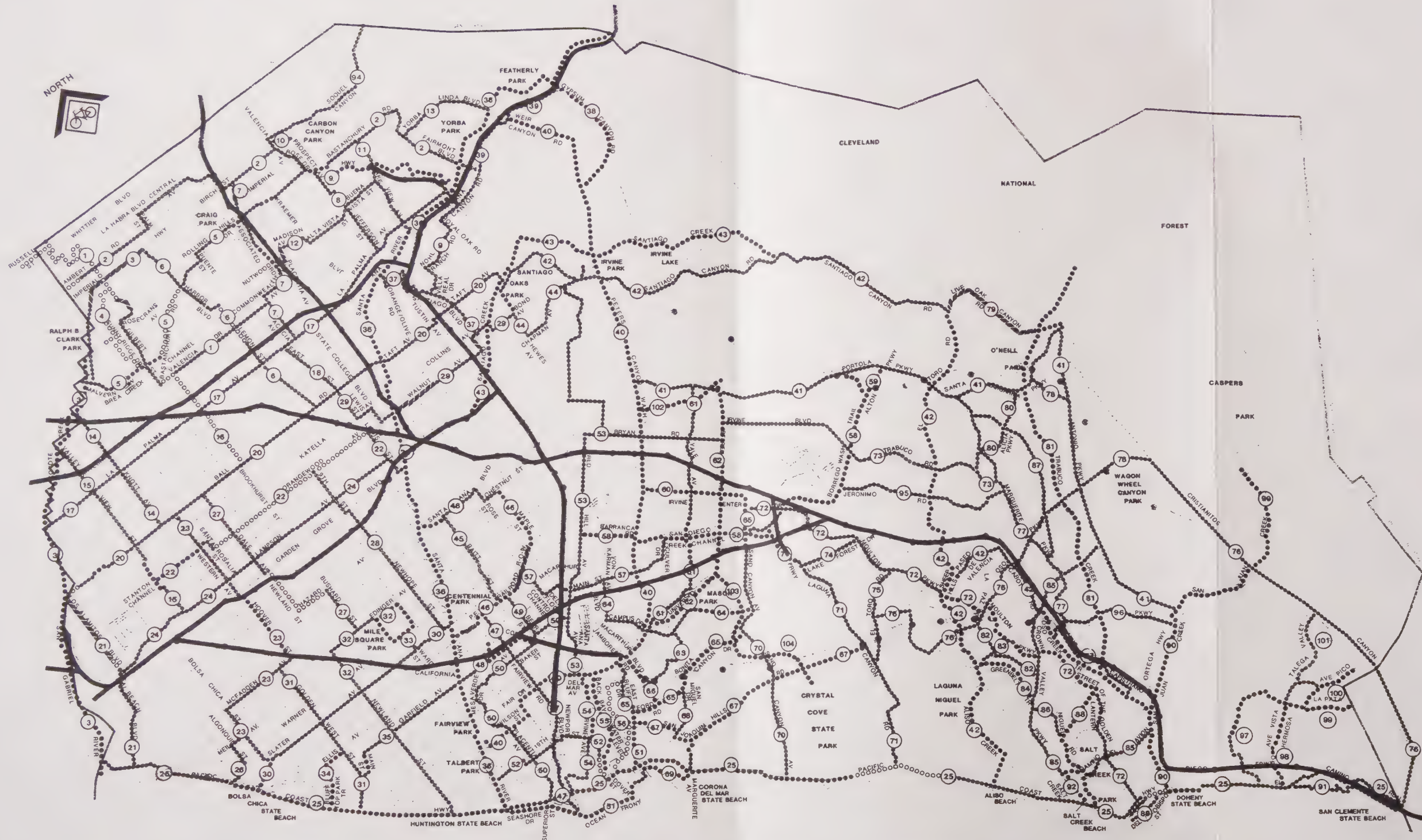


Chart 2-3

BIKE LANE PARKING PERMITTED



LEGEND

ORANGE COUNTY BIKEWAYS

- CLASS I TRAIL
- CLASS II TRAIL
- CLASS III TRAIL
- UNDETERMINED
- BIKEWAY NUMBER
- PARKS / PRESERVES
- SHORELINE

TYPICAL SECTION

CLASS I
TWO-WAY OFF-ROAD BIKE PATH

CLASS II
ON-ROAD STRIPED LANES PARKING PROHIBITED

CLASS III
ON-ROAD STRIPED LANES PARKING PERMITTED



CERTIFICATION

The Master Plan of Countywide Bikeways was originally adopted by the Orange County Board of Supervisors on September 29, 1971, No. 71-1088, as a component of the Recreation Element of Orange County's General Plan, and on September 23, 1980, Resolution Number 80-1518, ratified as a component of the Transportation Element of the General Plan.

I hereby certify that the Master Plan of Countywide Bikeways component, consisting of the general location and extent of existing and proposed countywide bikeways, was prepared under my direct supervision and recommended for adoption.

Steven M. Hogan
Steven M. Hogan, RCE 29268
Manager
Transportation Program Division

Michael M. Ruane
Michael M. Ruane, Director
Environmental Management Agency

MAP 2-1: MASTER PLAN OF COUNTYWIDE BIKEWAYS

County of Orange, California
ENVIRONMENTAL MANAGEMENT AGENCY, TRANSPORTATION PLANNING

COMPONENT THREE

MASTER PLAN OF SCENIC HIGHWAYS

MASTER PLAN OF SCENIC HIGHWAYS COMPONENT

A. OVERVIEW

The Scenic Highways Component of the Transportation Element fulfills the requirement of California Government Code Section 65302(h) which mandates a Scenic Highway Element of the General Plan. The Scenic Highway Element of the General Plan was first adopted by the Board of Supervisors on June 12, 1973 (Resolution No. 73-659). The Component identifies the countywide scenic highway routes.

The primary purpose of the Scenic Highways Component is to define the policy guidelines pertaining to the implementation of the Master Plan of Scenic Highways. It attempts to incorporate safety, utility, economy, and aesthetics into the planning, design and construction of scenic highways

B. CLASSIFICATION

The designated scenic highways of Orange County have been divided into two categories: Viewscape Corridors and Landscape Corridors (Appendix 12).

1. Viewscape Corridor (Type 1)

A viewscape corridor is a route which traverses a corridor within which unique or unusual scenic resources and aesthetic values are found. This designation is intended to minimize the impact of the highway's and land development upon the significant scenic resources along the route. Safety roadside rests and vista points should be developed, when feasible and where appropriate, to enhance any exceptional scenic values (Charts 3-1 and 3-2).

Development of the right-of-way should, to the extent possible, follow the adopted Viewscape Typical Section (Chart 3-3). If utilization of the typical section would destroy the scenic amenities of the corridor, a modification of the standard can be considered. The appropriate width and development of the right-of-way must be discussed/considered in the scenic corridor implementation plans.

2. Landscape Corridor (Type 2)

A landscape corridor traverses developed or developing areas and has been designated for special treatment to provide a pleasant driving environment as well as community enhancement. Development within the corridor should serve to complement the scenic highway.

Development of a landscape corridor should, to the extent possible, follow the adopted Landscape Typical Section (Chart 3-4). Any variation to the typical section should be addressed in the scenic corridor implementation plans.

C. GOALS, OBJECTIVES AND POLICIES

This section provides guidance for countywide and county unincorporated goals, objectives and policies regarding scenic highways.

1. GOAL: TO PRESERVE AND ENHANCE UNIQUE OR SPECIAL AESTHETIC AND VISUAL RESOURCES THROUGH SENSITIVE HIGHWAY DESIGN AND THE REGULATION OF DEVELOPMENT WITHIN THE SCENIC CORRIDOR.

Objectives:

- 1.1 To protect and enhance the County's beauty, amenities and quality of life.
- 1.2 To add to the pleasure of its residents and visitors, and to play an important role in encouraging the growth of the recreation and tourist industries upon which the economy of many areas of the County depend.
- 1.3 To coordinate with CalTrans, the various cities of Orange County, and the development community, in the development of new scenic corridors in order to preserve the aesthetic qualities of the environment.
- 1.4 To coordinate with the cities of Orange County in the preservation of established scenic corridors so as to protect existing scenic qualities of the corridors.
- 1.5 To develop the roadway portion of the scenic corridors in a manner that recognizes the natural scenic resources of the corridor and is sensitive to them to the maximum extent feasible.

Policies:

Project Consistency: To require preparation and approval of highway plans demonstrating project consistency with the intent of the Scenic Highway Component prior to tract map recordation. This can be accomplished through the subdivision, discretionary permit, Feature or Area Plan review process.

Offer of Dedication: Where necessary to preserve unique or special visual features, impose conditions on development within a scenic highway corridor to require dedication of scenic easements consistent with the adopted corridor plan.

To preserve scenic routes which have exceptional or unique visual features, but are not necessarily designated as arterial highways on the MPAH, by placement on the Master Plan of Scenic Highways

(MPSH). Development of the scenic highway shall be in conformance with a Specific Plan prepared in accordance with the Scenic Highway Implementation Planning Guidelines (Appendix 13).

Cooperative Planning: To connect County-designated scenic highways with city-designated scenic highways; adjacent-County-designated scenic highways, or those in the State Scenic Highway system so as to form a linked system.

Where feasible, through the design process and alignment studies, develop the scenic highway in a manner which takes into account the cone of vision of the motorist. Consider both the short and long-range views available along the way while enhancing them with foreground framing.

To design the roadway to have a visual quality and riding comfort resulting from its horizontal and vertical design. Introduce curves where feasible to take advantage of natural or man-made scenic features.

To incorporate pedestrian, equestrian, and bicycle trails into the right-of-way of scenic highways as designated by the Master Plan of Countywide Bikeways and the Master Plan of Riding and Hiking Trails.

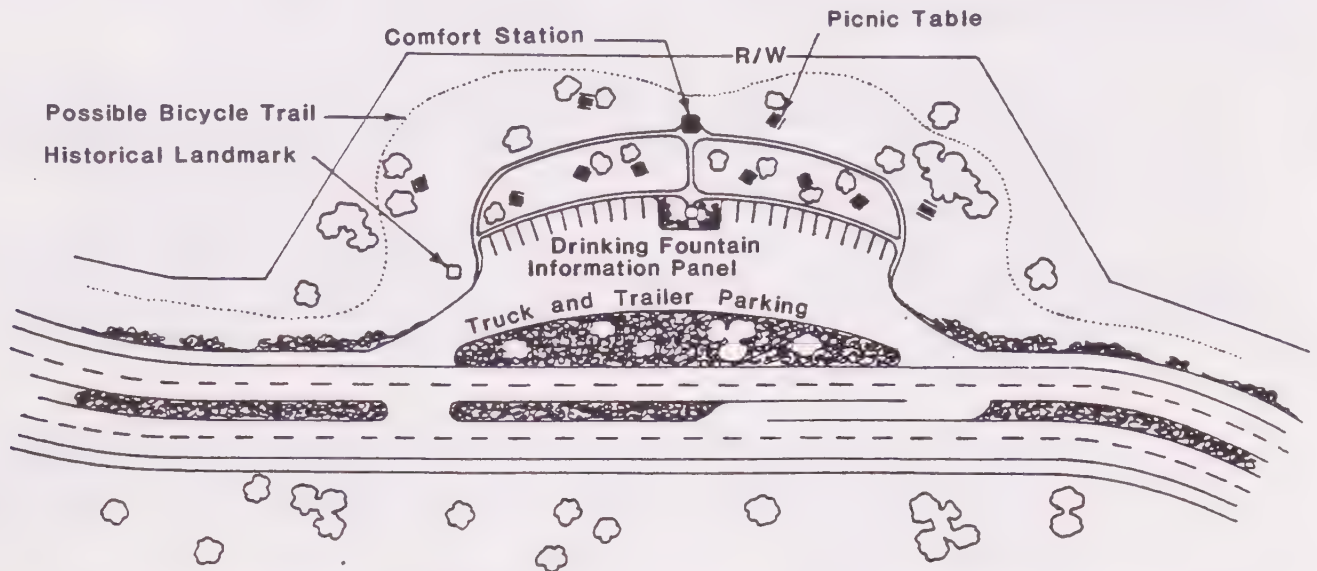
Where feasible, utilize contour grading and slope rounding to gradually transition graded road slopes into the natural configuration consistent with the topography of the area.

D. IMPLEMENTATION PROGRAMS

1. Subdivision Process

During the review of subdivisions and discretionary permits, assure that the number of access points (e.g. driveways, local roads, etc.) on scenic highways are minimized.

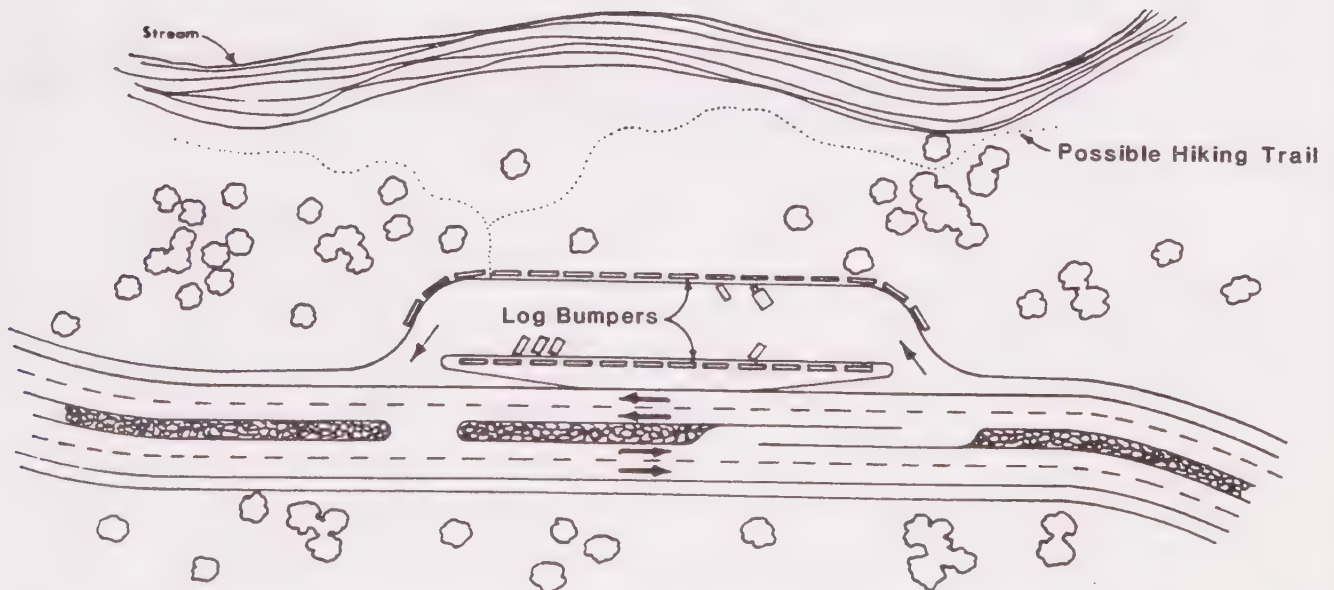
SAFETY ROADSIDE REST



Safety Roadside Rest: Facilities of limited size (usually 1 to 3 acres) located along highways for the rest, comfort and enjoyment of the scenic highway traveler, may include sanitary facilities, picnic tables and landscaping.

Chart 3-1

VISTA POINT

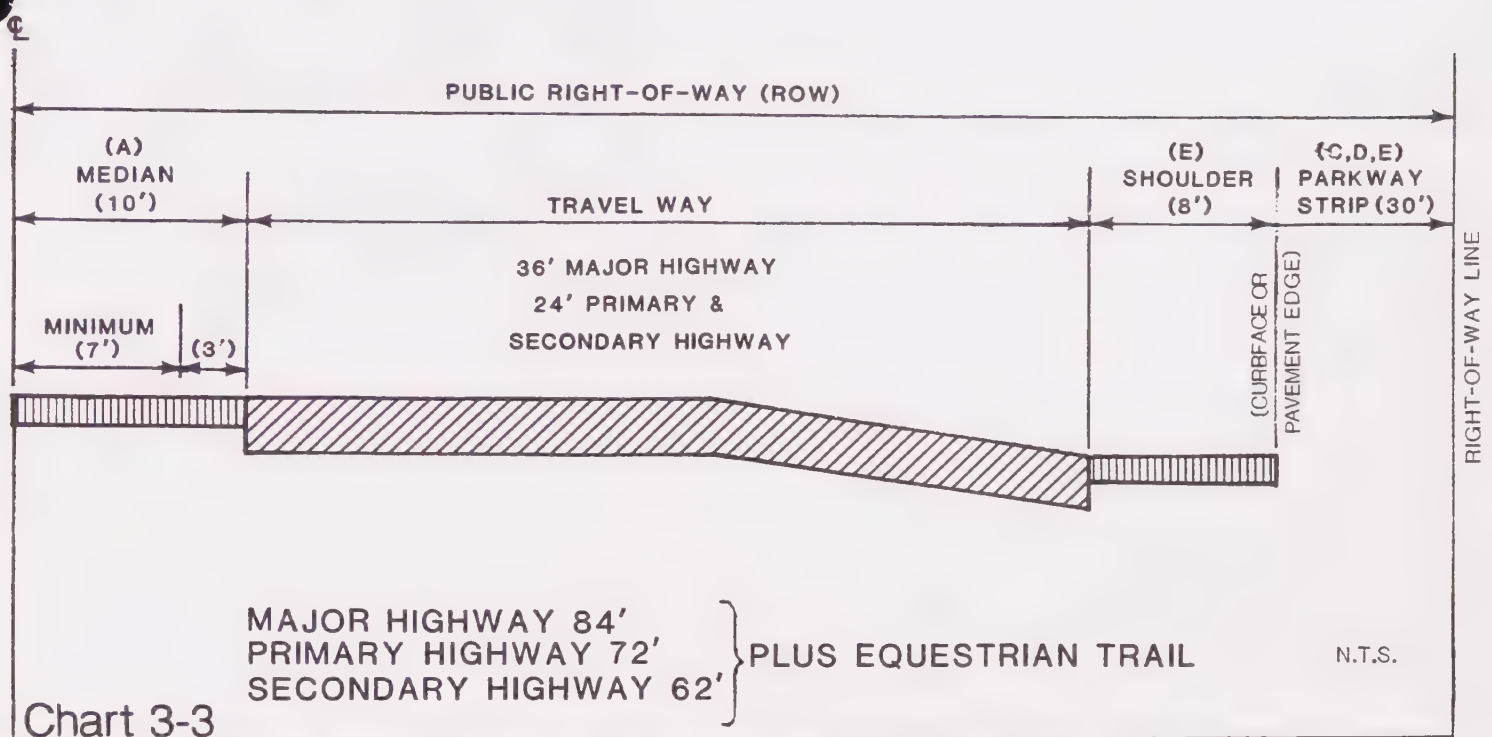


Vista Point: A designed turnout with a scenic view and with sufficient width to provide for a paved parking area and a separated access lane from the traveled portion of the highway.

Chart 3-2

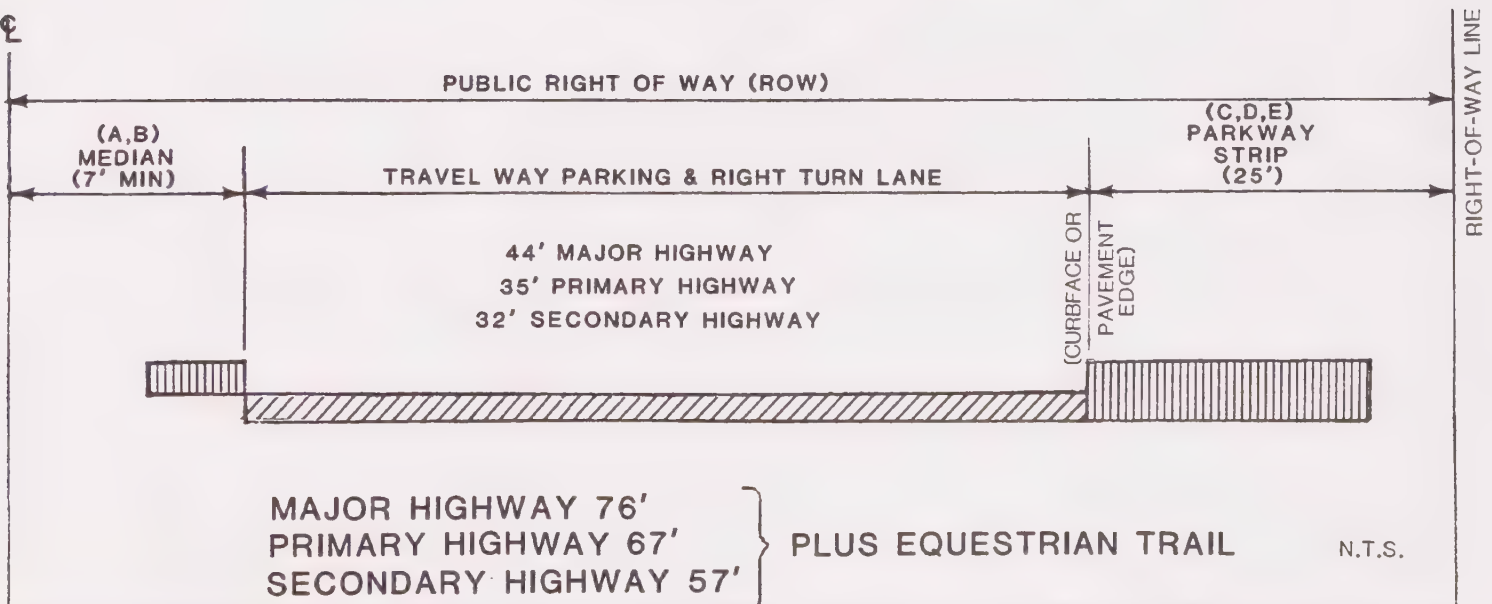
VIEWSCAPE HALF-SECTION (TYPICAL)

SYMMETRICAL ABOUT Q



LANDSCAPE HALF-SECTION (TYPICAL)

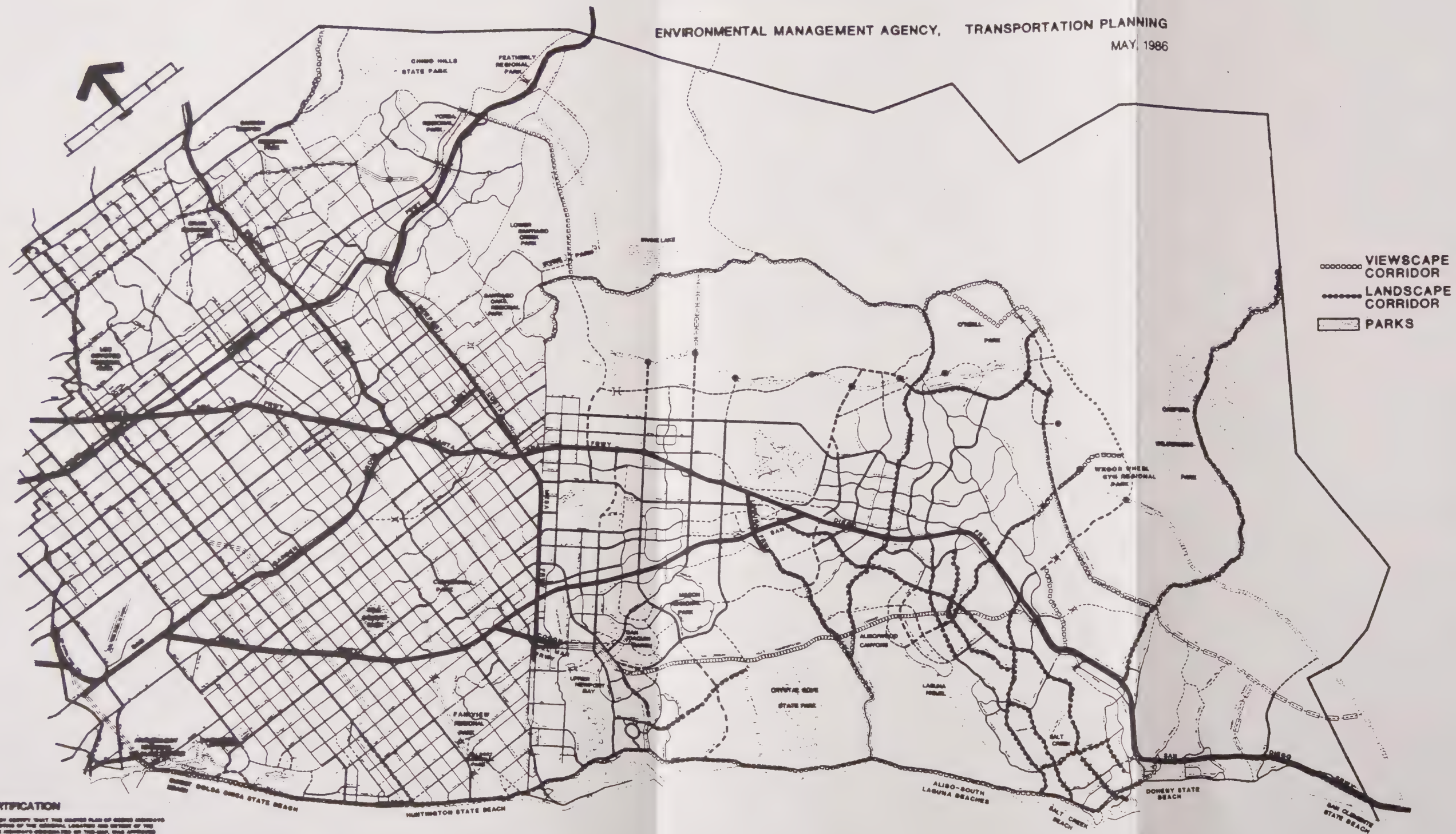
SYMMETRICAL ABOUT Q



- LEGEND**
- (A) NORMALLY NO MEDIAN FOR SECONDARY HIGHWAYS
 - (B) 15' MINIMUM FOR EXISTING TREE ROW (E.G. EUCALYPTUS)
 - (C) PARKWAY STRIP TO ACCOMMODATE HIGHWAY BEAUTIFICATION & PAVED FACILITIES FOR PEDESTRIANS & BICYCLES
 - (D) ADD 10' ON ONE SIDE FOR MASTER PLAN EQUESTRIAN TRAIL
 - (E) PRECISE WIDTH OF PARKWAY STRIP AND THE USE OF CURB AND GUTTER OR A.C. DIKE, TO BE DETERMINED BY SCENIC CORRIDOR IMPLEMENTATION PLANNING

MAP 3-1
MASTER PLAN OF SCENIC HIGHWAYS
ORANGE COUNTY, CALIFORNIA

ENVIRONMENTAL MANAGEMENT AGENCY, TRANSPORTATION PLANNING
MAY, 1986



CERTIFICATION

I HEREBY CERTIFY THAT THE ABOVE PLAN OF CHINESE IMMIGRANT SETTLEMENTS OF THE GENERAL LOCATION AND EXTENT OF THE CHINESE IMMIGRANT SETTLEMENTS AT THIS DATE, WAS APPROVED AS THE GENERAL PLAN OF THE PROPOSED CHINESE SETTLEMENTS OF THE GENERAL PLAN OF THE CHINESE IMMIGRANT SETTLEMENTS.

WITNESSED MY HAND AND OFFICE OF
RECORDING CLERK, S.S. 543, OF THE CHINESE
IMMIGRANT SETTLEMENTS OF CHINA, ON JAN. 20, 1904.

Interim

COMPONENT FOUR

MASTER PLAN OF TRANSIT SYSTEMS

MASTER PLAN OF TRANSIT SYSTEMS COMPONENT

A. OVERVIEW

By Board Resolution No. 81-1396, September 22, 1981, a Memorandum of Understanding (MOU) was established between the Orange County Transit District (OCTD) and the County of Orange for the purpose of assuring cooperative, effective and coordinated land use and transit planning within the County. While the County and cities do not have jurisdiction over the Transit District, County and city decisions relating to the planning and development of land uses and the arterial highway system significantly affect the effectiveness of the transit system.

The primary purpose of the Master Plan of Transit Systems (MPTS) is to outline the policies and practices which will promote the incorporation of transit into the transportation network. The MPTS addresses the broad policies and actions that have long-term effects on transit services. The MPTS does not include the short-range bus route plans because these are operational decisions and are subject to frequent changes by OCTD.

This document also identifies the areas where the County and cities can facilitate the deployment of service and complement the goals and objectives of OCTD. The Master Plan of Transit Systems ensures that the needs of OCTD are considered in the County planning process. By so doing, it accomplishes one of the key objectives of the Memorandum of Understanding between the County and OCTD (see Appendix 15). For detailed information regarding OCTD plans and programs, the Orange County Transit District should be contacted.

B. CLASSIFICATION

Transit services are generally distinguished by type or category as follows:

1. Grid Service

A grid service is a service which has existed for two or more years, operates throughout the day on a year-round basis, and does not service downtown Santa Ana. These routes generally operate at high speeds and serve areas with lower employment densities and secondary OCTD transit terminals (terminals serving less than ten routes).

2. Radial Service

A radial service is a service which has existed for two or more years, operates throughout the day on a year-round basis, and serves downtown Santa Ana. These routes generally serve areas with

high concentrations of the transit dependent and high employment densities, and serve the downtown Santa Ana Transit Terminal, the focal point of transfer activity in the OCTD fixed-route system.

3. Peak-Hour

A peak-hour service is a transit service that has existed for two or more years, operates year-round, and only during weekday peak hour time periods.

4. Express Service

An express service is a transit operation which has existed for two or more years, operates year-round, and has freeway travel accounting for 50 percent or more of its daily service hours.

5. Development Service

A development service is a service which is either new (in operation for less than two years), seasonal, or special (operated for special events).

C. GOALS, OBJECTIVES, AND POLICIES

Goals, objectives, and policies are intended to serve as countywide guidelines and provide direction to transportation implementation in the County's unincorporated areas.

1. GOAL: TO SERVE THE PEOPLE OF ORANGE COUNTY BY PROVIDING HIGH QUALITY PUBLIC TRANSPORTATION SERVICES THAT ARE CONVENIENT, EFFECTIVE, SAFE AND EFFICIENT

Objectives:

- 1.1 To make multi-modal transportation service and information available to all residents of the County.

2. GOAL: TO PROVIDE FOR COMMUTER (PEAK HOUR) TRANSIT SERVICE

Objectives:

- 2.1 To increase commuter usage and service.
- 2.2 To encourage rail use.
- 2.3 To plan and design high speed trains, monorails, etc.
- 2.4 To encourage private participation and incentives to develop rail transit.

3. GOAL: TO RESPOND TO THE TRANSPORTATION NEEDS OF THE TRANSIT DEPENDENT, SUCH AS SENIOR CITIZENS, YOUTHS, HANDICAPPED PERSONS, AND THOSE WHO CANNOT AFFORD PRIVATE TRANSPORTATION

Objectives:

- 3.1 To provide convenient and comfortable service to facilitate the needs of the transit dependent.
- 3.2 To maximize mobility of the transit dependent.
- 3.3 To identify, implement and develop assistance to the transit dependent.
- 4. GOAL: TO ENCOURAGE THE DEVELOPMENT OF CONVENIENT AND EFFECTIVE TRANSIT ALTERNATIVES AND HIGH-OCCUPANCY VEHICLE SYSTEMS TO REDUCE TRAFFIC CONGESTION, CONSERVE ENERGY AND CONTRIBUTE TO CLEAN AIR

Objectives:

- 4.1 To increase employer participation in Transportation Demand Management (TDM) programs and to maximize private sector participation.
- 4.2 To develop, in cooperation with appropriate agencies and jurisdictions, regional parking facilities in a manner that will facilitate transit ridership and alleviate highway congestion, energy consumption, and air quality problems.
- 4.3 To encourage integrated development of existing and future multi-modal facilities.
- 4.4 To develop a Master Plan of Countywide Multi-modal Facilities. (A preliminary concept of a multi-modal network is shown on Map 4-1.)
- 5. GOAL: TO PROVIDE TRANSPORTATION SERVICES THAT ARE COST EFFECTIVE, PRODUCTIVE AND RESPONSIVE TO DEMAND, AND TO OPERATE THOSE SERVICES WITHIN THE FINANCIAL RESOURCES AVAILABLE

Objectives:

- 5.1 To provide a level of service such that all categories of service are productive.
- 5.2 To increase fare box recovery and cost effectiveness.

Policies:

Pedestrian Accessibility Policy: To ensure that transit services have maximum pedestrian accessibility.

When reviewing subdivisions or site plans, coordinate with OCTD to ensure that warranted transit facilities and pedestrian linkages are integrated into the project design in a manner that will minimize walking distance.

Require sidewalks, handicap ramps, passenger amenities (shelters, benches, signs, etc.) and other transit facilities (bus pads, red curb zone or turnouts, etc.) at transit stops.

Building sites within a development should be laid out in a manner that will assure that the majority of the occupants will be within a quarter-mile walking distance of a bus stop. Building sites should ideally be located nearest to the street where transit service is, or will be provided.

D. IMPLEMENTATION PROGRAMS

1. Transitway Development

To serve the County's major activity centers, a 19.4-mile system of transitways is proposed for the I-5, SR-55 and SR-57 freeway corridors. The 19.4 miles of transitway, along with approximately 90 miles of commuter (carpool) lanes, will create an overall countywide network of 110 miles of exclusive transit/High Occupancy Vehicle (HOV) facilities.

2. Express Fixed Route

A bus system which operates on the freeway and arterial highway system. This service is provided primarily for commuters from residential areas to major employment centers.

3. Commuter Network

Commuter Network provides carpool and vanpool matching services, and TDM program development and assistance services to employers and activity centers. This program includes transportation services such as ridesharing, flex-time programs, parking management, rideshare promotional incentive programs, and helping people use OCTD buses.

4. Market Development

This program utilizes private contractors, using OCTD-owned equipment, to provide experimental fixed route services in newly developing areas of the County. While largely targeted at commuters, these routes also provide mobility for transit-dependent persons in areas lacking the density required for regular fixed route service.

5. Local Fixed Route

This service is provided by a system of 46 bus lines (1989) operating over a one-mile grid network. The service operates on arterials, collectors, and local streets and carries approximately 85% of OCTD passengers. Service is available daily, with the highest levels of service occurring during peak periods. Some of the local routes provide lift-service for the physically handicapped.

6. Neighborhood Dial-A-Ride

This is a demand responsive (on-call) service for those unable to get to a fixed route, or who are located in areas not served by the fixed route system. This service thus operates primarily on local and collector streets.

7. Accessible Service for the Disabled

The District has a policy of ensuring mobility for the transportation disabled, and of equipping all new revenue vehicles with wheelchair lifts. It is currently planned that all such vehicles operated by OCTD will be lift-equipped by 1991.

8. Coordination between Development and Transit

When considering General Plan amendments, Zone changes, and Use Permit applications, to coordinate the location of high-density residential (especially affordable housing), and non-residential development near existing and proposed trunk-line transit routes, Park-N-Ride lots, major transfer stations, and proposed fixed guideway routes.

9. In-Fill Development for Transit

Encourage in-fill development consistent with that needed to make the use of public transit more cost effective.

10. Park-N-Ride Lots and Transit

Identify and designate Park-N-Ride lots and major transfer stations planned by OCTD on General Plan land use and Community Profile maps.

11. Regional Parking Facilities

When reviewing site plans and environmental impact reports for major activity centers, or Planned Communities where a high level of transit service is expected, ensure that sufficient land and facilities are provided for transit terminals and Park-N-Ride/car pool purposes.

12. Transportation System Management/Transportation Demand Management (TSM/TDM)

When reviewing site plans and environmental impact reports for high-density residential, industrial, and commercial development, encourage positive incentives (e.g. bus passes, ride sharing rewards/incentives, and preferential parking for car/van pools, etc.) for transit solutions as mitigation measures for traffic impacts.

13. Development Incentives

Consider development incentives such as density bonuses, parking reductions, etc. for developers who make significant contributions toward promoting public transit and providing transit stations.

14. Right-of-Way

Provide, or reserve right-of-way on planned freeways and transportation corridors for the development of guideway or line-haul transit, and its ancillary Park-N-Ride lots and transit stations.

15. Design Standard

Utilize OCTD's Design Guidelines for Bus Facilities in conjunction with the County's Standard Plans in designing transit facilities.

16. Transportation Systems Management for Transit

Encourage the implementation of transportation systems management techniques and other preferential treatment for transit (e.g. bus-exempt right turn lanes and adequate curb-side area for bus stops, channelization, synchronization of signals, and provisions for high occupancy vehicle lanes, etc.) in order to provide effective and efficient transit operation.

MAP 4-1: A PRELIMINARY CONCEPT OF MULTI-MODAL NETWORK



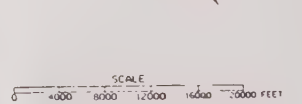
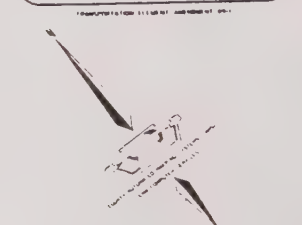
LEGEND:

- TRANSIT DEVELOPMENT PLAN
- +++++ HOV FACILITIES PLAN
- COMMUTER RAIL PLAN (INTERCITY)
- HIGHWAY IMPROVEMENT PLAN (MIXED FLOW)

MASTER PLAN OF ARTERIAL HIGHWAYS

COUNTY OF ORANGE, CALIFORNIA
TRANSPORTATION PLANNING, ENVIRONMENTAL MANAGEMENT AGENCY

LEGEND	
ARTERIAL HIGHWAYS	
ESTABLISHED	CONCEPTUALLY PROPOSED
MAJOR	MAJOR
MODIFIED MAJOR	MODIFIED MAJOR
PRIMARY	PRIMARY
MODIFIED PRIMARY	MODIFIED PRIMARY
SECONDARY	SECONDARY
COMMUTER	COMMUTER
TYPICAL SECTION	
<p>MAJOR</p> <p>120' 44' 44' 44'</p> <p>4 LANE DIVIDED ROADWAY</p> <p>FOR MODIFIED MAJOR PLAN CONCEPT SEE TRANSPORTATION ELEMENT MAP-4-1</p>	
<p>100' 15' 15' 15'</p> <p>PRIMARY</p> <p>4 LANE DIVIDED ROADWAY</p> <p>FOR MODIFIED PRIMARY PLAN CONCEPT SEE TRANSPORTATION ELEMENT MAP-4-1</p>	
<p>80' 64' 64' 64'</p> <p>SECONDARY</p> <p>4 LANE UNDIVIDED ROADWAY</p>	
<p>55' 40' 40' 40'</p> <p>COMMUTER</p> <p>1 LANE UNDIVIDED ROADWAY</p>	
<p>EXTERIOR RIGHT OF WAY MAY BE REQUIRED WHEN AN ARTERIAL HIGHWAY IS LOCATED WITHIN AN ADOPTEE ROUTE AND AN ADDITIONAL TRAILER, ACCESSIBLE, STATION, OR BICYCLE LANE IS DESIRED. TRAILER, ACCESSIBLE, STATION, OR BICYCLE LANE IS DESIRED. TRAILER, ACCESSIBLE, STATION, OR BICYCLE LANE IS DESIRED. TRAILER, ACCESSIBLE, STATION, OR BICYCLE LANE IS DESIRED.</p>	
TRANSPORTATION CORRIDOR	
ESTABLISHED	CONCEPTUALLY PROPOSED
RIGHT OF WAY RESERVE	RIGHT OF WAY RESERVE
SUPERSTREETS	
STATE FREEWAYS	
CONSTRUCTED	CONSTRUCTED
ADOPTED	ADOPTED
PROPOSED	PROPOSED
INTERCHANGE	INTERCHANGE
STATE FREEWAYS AND INTERCHANGES WILL BE SHOWN IN THIS MAP.	
PRIVATE STATUS ARTERIALS	
PRIVATE STATUS ARTERIALS	PRIVATE STATUS ARTERIALS
PRIVATE STATUS ARTERIALS	PRIVATE STATUS ARTERIALS



CERTIFICATION

I HEREBY CERTIFY THAT THE MASTER PLAN OF ARTERIAL HIGHWAYS COMPONENT OF THE GENERAL PLAN OF THE COUNTY OF ORANGE, CALIFORNIA, IS A TRUE AND CORRECT REPRESENTATION OF THE MASTER PLAN OF ARTERIAL HIGHWAYS COMPONENT OF THE GENERAL PLAN OF THE COUNTY OF ORANGE, CALIFORNIA, AS APPROVED BY THE BOARD OF SUPERVISORS OF THE COUNTY OF ORANGE, CALIFORNIA, ON AUGUST 11, 1993, AND ADOPTED BY RESOLUTION NUMBER 93-176 OF THE COUNTY BOARD OF SUPERVISORS.

STEVEN M. HOGAN, COUNTY ENGINEER

FINAL SCHEDULED DATE FOR TRANSPORTATION PLANNING, ENVIRONMENTAL MANAGEMENT AGENCY

APPENDIX 1

STATE FREEWAYS AND HIGHWAYS

APPENDIX 1

STATE FREEWAYS AND HIGHWAYS

Overview

Mobility to, from, and within Orange County is provided, to a large degree by a network of state freeways and highways. These facilities are the major regional circulation backbone of Orange County and are under the control of the California Department of Transportation (CalTrans). CalTrans established a new district, CalTrans District 12, in Orange County in 1987 to operate and oversee the expansion of the state freeway system in Orange County.

The Orange County Transportation Commission (OCTC), another regional agency, aids in implementation of Orange County's state highways and freeways by programming State highway improvement projects through the State Transportation Improvement Program (STIP).

The County's role in freeway and highway planning is subordinate to CalTrans. However, State highways are regarded as arterial highways and thus, are included in the MPAH. Therefore, in order to ensure an integrated and efficient overall system of surface transportation, County typically coordinates proposed improvements to highways with CalTrans. In addition, the County requires the development community to analyze, as part of their development impact analysis, traffic impacts on state highways. The County also requires dedication of right of way, if needed, to fully implement these facilities. State highway improvements are also included in some county road financing plans such as fee programs.

State Highway and Freeway Conditions

The present system of freeways in Orange County, consisting of 137 miles, is in need of repairs and expansion. In addition, inadequate capacity on the freeways is the single most significant factor in the transportation problem in Orange County. This is particularly evident during peak periods which are characterized by severe congestion and low travel speeds.

One of the major reasons for the inadequacy and deterioration of the freeway system is its age. Over the years, the County's freeways have been patched, restriped, grooved, resurfaced, redesigned in spots, and subjected to a variety of other interim problem-solving remedies which have, at best, kept conditions from worsening. Within the last few years, however, renewed interest and activity has been focused on improving the capacity of these facilities. A car pool lane for two or more riders has been successfully implemented on SR-55. Similar facilities for I-405 opened in Summer, 1989 and are planned for other freeways in the near future. Today, plans are

under way to physically improve various freeway links and interchanges in the County. The most significant improvements are planned for SR-55 at I-5, and the I-5/SR-22/SR-57 interchanges. In the future, development and expansion of alternative transportation modes such as rail and transit facilities, along with transportation systems management strategies, will be the key to increased capacity in the circulation system.

APPENDIX 2

RELATIONSHIP OF TRANSPORTATION ELEMENT TO OTHER GENERAL PLAN ELEMENTS

APPENDIX 2

RELATIONSHIP OF TRANSPORTATION ELEMENT TO OTHER GENERAL PLAN ELEMENTS

The Transportation Element is an integral part of the Advance Planning Program of the County of Orange and has the same horizon year and growth assumptions as other elements so as to ensure internal consistency. The Advance Planning Program comprises three components: Long-Range Planning Framework, General Plan Elements, and Community Profiles.

Component I, the Long-Range Planning Framework, provides the long-range framework and general goals for the Advance Planning Program. The document includes broad transportation goals that provide a basis for the specific goals and policies contained in the Transportation Element.

The Transportation Element is a part of Component II. It is one part of a compendium of nine General Plan Elements which address projections for the next 15 to 20- year time frame. The Transportation Element provides a basis for transportation-related decisions, and complements the other General Plan elements. Specifically, it clarifies and addresses transportation issues raised in the other General Plan elements and offers guidance toward solutions.

The Transportation Element, as an expression of County transportation policy, achieves consistency with other General Plan elements as well as Components I and III of the Advance Planning Program through the use of common demographic assumptions. These demographic projections have been adopted by the Board of Supervisors in the Orange County Preferred (OCP)-88 (modified), a single data reference used for County policy-making and planning. All long-range planning and budgeting activities by the County of Orange, Orange County Transportation Commission, and Orange County Transit District are based on these projections.

This element is also responsive to the Growth Management Plan Element policies, Air Quality Management District (AQMD) objectives, and regional planning objectives of the Southern California Association of Governments (SCAG) and the Orange County Transportation Commission (OCTC).

Component III, Community Profiles, is the most detailed portion of the Advance Planning Program. The Community Profiles are short-range in scope and focus on community-level policies and programs. They depict existing and planned freeways, state highways, transportation corridors, arterial highways, and bikeways.

RELATED PLANNING AGENCIES AND PROGRAMS

Orange County transportation planning activities and decisions are influenced by federal, state, regional and local government. A key objective of the Transportation Element is to encourage a high degree of intergovernmental coordination and cooperation in planning and implementing

the County's regional transportation network. The following are some of the agencies whose policies and programs impact transportation activities in Orange County:

INTER-AGENCY COORDINATION

1. Federal Agencies

a. Federal Highway Administration

- (1) Operates under the legal authority of United States Code Title 23 Surface Transportation Act which defines Federal Highway programs
- (2) Transportation planning/facilities
- (3) Provides capital for State Highways, new corridors, local arterial programs and urban transit programs through revenue sources such as Federal-Aid Interstate and Federal-Aid Urban

b. Urban Mass Transportation Agency

- (1) Transportation planning
- (2) Development of federal highways
- (3) Transportation funding

c. Census Bureau

- (1) Coordination of socio-economic data related to transportation

2. State Agencies

a. Transportation Commission

b. State Office of Planning and Research

- (1) Coordinates and provides State assistance for transportation planning

c. Department of Transportation (CalTrans) Division of Highways

- (1) Oversees the state highway system and directs planning, designing, building, operating and maintaining state highways and freeways.
- (2) The Federal Aid Urban Highway program helps local agencies apply for federal grants to finance urban transportation projects, including bicycle lanes
- (3) Provides capital for urban transit programs such as bus

transit and transitway through revenue sources such as State Transit assistance

d. State Office of Local Governmental Affairs:

- (1) State Clearinghouse for environmental impact reports (EIR's)
- (2) Prepares guidelines for the preparation of mandatory elements of the General Plan
- (3) Coordinates and provides State assistance for land use planning

e. Department of Finance

- (1) Coordinates socio-economic data related to transportation

3. Regional Agencies

a. Southern California Association of Governments (SCAG)

- (1) Regional growth forecast policy
- (2) Coordinates socio-economic projections related to transportation
- (3) Regional Air Quality, Transportation, and Housing Plans
- (4) Transportation Improvement Plans

b. South Coast Air Quality Management Agency

- (1) Air quality management activities

4. Countywide Agencies

a. Orange County Transportation Commission (OCTC)

- (1) Responsible for planning and programming of state and federal transportation funding in Orange County

b. Orange County Transit District (OCTD)

- (1) Provides public transit to Orange County residents, including fixed route bus service and Dial-A-Ride
- (2) Responsible for construction of a countywide network of transitway and commuter lanes

c. Transportation Corridor Agencies

- (1) Established by joint powers agreements between cities in Orange County and the County to collectively plan, design, construct and finance the Foothill, Eastern and

the San Joaquin Hills corridors

d. Orange County Subregional Planning Council

- (1) Advisory Countywide Planning Council comprised of the County of Orange and the cities of Orange County

e. Local Agency Formation Commission (LAFCO)

- (1) Coordinates local government and special districts' activities
- (2) Reviews city's sphere of influence areas and related activities

5. Private Organizations

- a. Amtrak
- b. Automobile Club of Southern California
- c. Community/Homeowners' Associations
- d. Public-interest organizations (e.g., League of Women Voters, Orange County Historical Society, etc.)

COUNTY ORGANIZATION

1. Environmental Management Agency (EMA)
2. County Administrative Office (CAO)
- a. Urban Monitoring and Analysis Center
- (1) Growth Management Program (GMP)
- (2) Development Monitoring Program (DMP)
- b. Forecast and Analysis Center
- (1) Population, employment and housing data
- (2) Base maps

APPENDIX 3

GROWTH MANAGEMENT PLAN TRANSPORTATION IMPLEMENTATION MANUAL

C O U N T Y O F O R A N G E

GROWTH MANAGEMENT PLAN

TRANSPORTATION IMPLEMENTATION MANUAL

Adopted by the Board of Supervisors

June 1989

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I. INTRODUCTION

On March 1, 1988 the Board of Supervisors approved a proposed Public Facilities and Growth Management Plan Concept and work program for its implementation. A week later, on March 9, the Board then established an Ad-Hoc Advisory Committee to develop the principles to be included in a Growth Management Plan (GMP) Element as part of the County's General Plan. After numerous meetings, the Ad-Hoc Advisory Committee presented the Board with its recommendations and a proposed GMP Element on August 3, 1988.

Elements of the County General Plan are, of necessity, broad statements of policy, intent, and objectives. They are designed to be flexible and adaptable to a variety of situations. As a result, General Plan Elements and the policies contained within them lack specificity and detail about their application. To clarify the intent of the "Traffic Level of Service Policy" of the GMP Element, the EMA was directed to prepare a manual stating the procedures and local parameters for the implementation of this policy.

This manual describes how the general traffic policies of the GMP Element are to be implemented on a site or project specific basis. It includes a listing of projects which are exempt from GMP traffic requirements, acceptable traffic analysis methodologies, minimum requirements of GMP traffic reports, and the traffic monitoring surveys the County will conduct to determine system performance.

The GMP Element and this manual apply to Santiago Canyon Road and signalized intersections under the sole control of the County. Unsignalized intersections, intersections partially or totally under another agency's jurisdiction, or intersections under another agency's control are exempt from the requirements of the GMP*. In the case of unsignalized intersections where, in the County's judgment, signalization will occur within five years, the intersections shall be considered as signalized for the purposes of this manual.

*It may be necessary to modify the application of this manual to intersections involving other jurisdictions if a growth management program is adopted countywide or in jurisdictions adjacent to the unincorporated County.

II. DEFINITIONS

In addition to those terms defined in the GMP Element, for the purposes of this manual, the following terms shall have the following meanings:

- A. **CRITICAL MOVEMENT:** In the case of signalized intersections, any of the conflicting through or turning movements which determine the allocation of green signal time. In the case of Santiago Canyon Road, that direction of any two way peak hour flow which is greater.
- B. **DEFICIENT INTERSECTION FUND (DIF):** A trust fund established to collect fees and implement the maximum improvements deemed feasible by the County to existing signalized intersections which do not meet the Traffic Level of Service Policy for reasons beyond the County's control. All projects contributing measurable traffic to intersections on the Deficient Intersection List shall contribute to this fund on a pro-rata basis.
- C. **DEFICIENT INTERSECTION LIST (DIL):** A list of intersections within the jurisdiction of the County which does not meet the Traffic Level of Service Policy for reasons which are beyond the control of the County (e.g., ramp metering effects, traffic generated outside the County's jurisdiction, etc.). The current list is included as Section VI of this manual. Additional intersections may be added by the County only as a result of conditions which are beyond the control of the County and after a public hearing.
- D. **EXEMPT INTERSECTION:** An unsignalized intersection or an intersection not under the sole control or jurisdiction of the County of Orange or on the Deficient Intersection List.
- E. **LEVEL OF SERVICE (LOS):** A measure of the operational quality of a road or intersection ranging from Level of Service A (best) to Level of Service F (worst).
- F. **MAXIMUM FEASIBLE INTERSECTION (MFI):** The maximum condition an existing intersection may be widened or improved to, while still providing reasonable operational characteristics, given the nature of the surrounding land use. The MFI concept will apply specifically to the DIL and the determination will be made by the County.
- G. **MEASURABLE TRAFFIC:** A traffic volume resulting in a 1% increase in the volume/capacity ratio of the sum of all critical movements.

Example: If the V/C of an intersection is 0.860, measurable traffic will be any addition of trips which will raise the V/C to $0.860 + 0.01 \times 0.860$, i.e., 0.869. For an intersection operating at $V/C = 0.860$ ($C = 1700$), measurable traffic would then be any increase in traffic which adds $(0.869 - 0.860) \times 1700 = 15.3$ or 15 or more vehicles to the critical movements.

- H. SPHERE OF IMPACT: That area within unincorporated Orange County to which a project contributes measurable traffic.
- I. TRAFFIC LEVEL OF SERVICE POLICY: Within three years of the issuance of the first use and occupancy permit for a development project or within five years of the issuance of a finished grading permit or building permit for said project, whichever occurs first, all necessary improvements to the non-exempt signalized intersections to which the project contributes measurable traffic shall be constructed and completed to attain Level of Service (LOS) "D" or better. LOS "C" shall be maintained on all uninterrupted links of three miles in length or more on Santiago Canyon Road until such time as uninterrupted segments (i.e. between major signalized intersections) are reduced to less than three miles.

III. PROJECTS EXEMPT FROM THE GMP REQUIREMENTS

The following development projects have been deemed to have significant public benefit or little traffic impact and are exempt from the requirements of the GMP:

- A. Any development on an existing lot resulting in a total daily traffic generation of less than 200 trips. The following amounts of land use will each generate 200 trips. For other land uses, see "Daily Vehicle Trip Generation Rates" prepared by Orange County

Multifamily residential	28.5 Dwelling Units
Mobile Home	40 Dwelling Units
Light Industrial	15,400 square feet
Hotel/Motel	20 Rooms
General Office	13,300 square feet
Medical Office	2,600 square feet
Neighborhood Commercial	1,480 square feet
Convenience Market	360 square feet
Fast Food Restaurant	222 square feet

- B. Any agricultural, open space, conservation, or passive park use.
- C. Any rebuilding of an existing development damaged or destroyed by fire or natural disaster if uses and square footage remain substantially the same.
- D. Public health and safety facilities such as hospitals, police, fire and safety facilities, and schools.
- E. Government-owned facilities or utilities shall be exempt to the extent the facilities will not be used for generating revenue or commercial purposes. Examples of exempt public uses are city halls, park buildings, and other public buildings. Privately owned utilities will not be exempt from growth management requirements. Notwithstanding property tax exemptions, governmental-owned or constructed facilities (including but not limited to counties, cities and redevelopment agencies) which will generate revenue or be leased for commercial purposes shall be required to prepare the necessary reports and mitigate impacts as appropriate. Examples of this include the revenue generating portions of airports, train stations, stadiums, sports arenas, convention centers, bus terminals, hotels, or concessions on public lands.

- F. Minor alterations and remodeling of existing structures resulting in no substantial change in traffic generation as determined by the Director, EMA.
- G. Places of worship, colleges, welfare, etc. to the extent such facilities are exempt from property tax levies.

IV. TRAFFIC ANALYSIS METHODOLOGIES

There is a wide variety of traffic analysis methodologies available to traffic engineers. They range from specific procedures required by individual municipalities to standardized techniques used nationwide. In order to ensure all GMP analyses are consistent, accurate, and generally reproducible the County of Orange has adopted a set of procedures and acceptable methodologies that are representative of travel behavior in Southern California. For the analysis of GMP traffic impacts at intersections, the County of Orange requires either the Intersection Capacity Utilization (ICU) or Critical Movement Analysis (CMA) methodologies be used.

ICU and CMA techniques are similar and rely on the same set of assumptions. If performed properly, both techniques will yield identical results. This manual assumes traffic engineers are familiar with the analysis techniques and need only be provided with the necessary assumptions regarding flow rates, clearance times, adjustment factors, etc., to calculate level of service.

The following is a list of the assumptions to be used for GMP intersection analysis. Any individuals attempting a GMP traffic analysis without a full understanding of the procedure are urged to contact EMA/Transportation Programs for clarification prior to performing any work.

A. LEVELS OF SERVICE

The Level Of Service (LOS) of a signalized intersection shall be based upon the sum of the volume-capacity ratios (V/C) of the critical movements. The County's definition of the overall LOS of an intersection is as follows:

<u>LEVEL OF SERVICE</u>	<u>V/C RANGE</u>
A	0.00 - 0.60
B	0.61 - 0.70
C	0.71 - 0.80
D	0.81 - 0.90
E	0.91 - 1.00
F	1.00+

B. FLOW RATES AND ADJUSTMENT FACTORS

The saturation flow rate for intersections (also known as lane capacity) shall be 1700 vehicles per hour of green time per lane. This rate is the result of research done on intersections in Orange County during peak periods. This rate may be utilized on left, through, and right turn lanes. Generally, no adjustment will be necessary for dual left turn lanes. However, the County reserves the right to require the use of adjustment factors where, in the County's opinion, unusual conditions exist. In these cases, the adjustment factors for such items as lane width, trucks, grade, or pedestrian activity shall be as stated in the 1985 "Highway Capacity Manual" or any subsequent revisions.

C. LOST TIME

Lost time (also known as "yellow time" or "clearance interval" in some analyses) is given a value of zero in GMP analyses. The flow rate used for lane capacity (1700 vehicles per hour of green time) reflects the effects of lost time during the signal cycles.

D. LANE DISTRIBUTION

In most cases, approach traffic may be assumed to be distributed evenly among all lanes serving a given movement (i.e., left, through, or right). An exception to this may occur in the case of split signal phasing which is further discussed below. In certain locations where unusual attractions may occur such as a freeway ramp entrance or entrance to a shopping center, an unusually skewed distribution may occur. In such cases, the County shall specify the distribution to be used.

E. RIGHT TURNING TRAFFIC

If the distance from the inside edge of the outside through travel lane is at least 19 feet (see figure below) and no observable parking demand exists during the peak period, or parking is prohibited, right turning vehicles may be assumed to utilize this "unofficial" right turn lane. Otherwise, all right turn traffic shall be assigned to the outside through lane. If a right turn lane exists, right turn on red, if not prohibited at that location, may be assumed. However, the assumption of the number of vehicles turning right on red must be reasonable and not conflict with any other critical movements and is subject to the approval of EMA/Transportation. If a free right turn exists (right turns do not have to stop for the signal) a flow rate of 1700 vehicles per hour may be assumed for it. The analysis shall account for all right turning traffic, none shall be ignored. Any need for signal overlaps shall be clearly stated.

F. SIGNAL PHASING

At some intersections, split signal phasing may exist. At such locations optional through/left or through/right lanes may be present. Any analysis done for these situations must reflect the true distribution of the approach traffic into these optional lanes. This type of operation is often the most difficult to analyze and additional care should be taken to ensure correct results.

There has been much controversy in recent years over the intersection methodology contained in the 1985 "Highway Capacity Manual" which is based upon average vehicle delay rather than percent of capacity. This is an excellent concept and provides a measure of service the average driver can easily grasp. The technique requires detailed information on the length of each signal phase, cycle length, and phase sequence, among other items. If these data are known with reasonable certainty, reliable delay results can be produced. Unfortunately, in the case of Orange County, signal control equipment prevents predictable, reproducible signal timing data.

Nearly all traffic signals in the unincorporated area are controlled by a central computer operated by EMA/Traffic Engineering. The computer directs traffic signals to operate in a coordinated manner designed to minimize motorist delay. Green lights are maximized to the extent possible. In so doing, the computer constantly adjusts the length of individual signal phases at each intersection and, at times, may change the overall cycle length. Since none of the timing data remains fixed, the intersection methodology of the 1985 "Highway Capacity Manual" cannot be used as a reliable benchmark. It is also very difficult to predict with accuracy what future signal timing will be at new installations or even at existing locations as travel patterns change. There is work underway at the national level to revise this methodology. For the present, the 1985 "Highway Capacity Manual" intersection methodology is not considered acceptable for GMP analysis.

G. SANTIAGO CANYON ROAD

The majority of the road miles within the United States consist of two lane roadways. As a result, a great deal of work has been done throughout the country regarding the capacity of two lane roads. The most current information and practice are reflected in the 1985 "Highway Capacity Manual".

For GMP traffic analyses of Santiago Canyon Road, the methodology described in the 1985 "Highway Capacity Manual" (or any subsequent revisions) for rural two lane highways shall be used, based upon peak hour volumes. The directional splits shall be as measured during the peak hours. All other adjustment factors shall be as described in the manual.

V. MINIMUM REQUIREMENTS OF GMP TRAFFIC ANALYSES

In order to ensure adequate information is provided to the County to judge the impacts of new development, the following minimum requirements are set forth for all traffic analyses of GMP traffic impacts. While the County does not seek to cause preparation of volumes of unnecessary reports, each application must pass a test of timeliness and content. Reports prepared at earlier levels of review may be used only if the information they contain is still representative of the project under consideration.

A. GENERAL

The report shall be prepared by, or under the supervision of, a Traffic Engineer registered by the State of California. The report shall bear the stamp of the responsible Traffic Engineer. No report shall be accepted for review if it does not bear the appropriate signature, stamp and expiration date. The report shall be divided into the following sections:

1. Project Description
2. Existing Conditions
3. Future Conditions
4. Project Trip Generation
5. Project Trip Distribution
6. Intersection Analysis
7. Santiago Canyon Road Analysis (if applicable)
8. Summary of Impacts
9. Mitigation

The following is an elaboration of each section describing in more detail what should be covered.

1. PROJECT DESCRIPTION

The project should be clearly described, stating the acreage, number of units or gross and net floor area, points of access, and planned usage. A location map should be included showing the project's relationship to the regional and local circulation systems. A feature plan, plot plan or site plan showing detail commensurate with the level of approval sought, including all pertinent transportation elements (e.g. arterials, streets, access locations, parking, driveways, etc.) must be part of the project description.

2. EXISTING CONDITIONS

All existing traffic conditions within the project's sphere of impact must be clearly described and presented in a graphical manner. Base condition traffic volumes, levels of service, critical movements, and Deficient Intersections will be available from the County. Tabular presentations may be used in addition to the graphical displays. These include:

- a. AM and PM peak hour, and daily traffic volumes.
- b. AM and PM peak level of service of all signalized intersections and identification of all critical movements.
- c. Deficient intersections.

3. FUTURE CONDITIONS

The future conditions within the project's sphere of impact shall be described in a graphical manner consistent with the level of entitlements for project plus existing, project plus three year projection, project plus five year projection from the date of the report. In addition, a buildout evaluation to establish general plan consistency when appropriate will be required. The County will provide the necessary background volume projections.

The traffic projections shall be based upon the level of information available for the project and the analyses may be adjusted at the discretion of the Director of Transportation. The levels of service of all signalized intersections will be presented. Any planned road or intersection improvements scheduled within the upcoming five years shall be described and accounted for in the analysis.

4. PROJECT TRIP GENERATION

The AM and PM peak hour and daily total traffic generation of the project shall be calculated using rates as specified by the County of Orange. In the event a land use is proposed for which no reliable generation rate is available from the County, the generation rate used may be derived from independent empirical studies subject to approval by the County. If the proposed project contains mixed land uses (such as commercial, residential, office or industrial) resulting in expected trips wholly internal to the project, the percentage of internal trips shall be approved by the County prior to proceeding with the analysis.

5. PROJECT TRIP DISTRIBUTION

The project's trip distribution shall be presented in graphical form showing both the number of trips generated by the project and the percentage of the project's total generation on each arterial link to the limit of the project's sphere of impact. In the case of a project containing mixed land uses, a separate distribution shall be presented for each land use, in addition to the summation of the individual distributions.

6. INTERSECTION ANALYSIS

Any intersection to which the project contributes measurable traffic, either in the present or in the three or five year projections, must be further analyzed using the methodologies previously discussed. The levels of service for such impacted

intersections shall be calculated and reviewed to determine if any mitigation is required under the conditions of the GMP.

If a project contributes measurable traffic to a Deficient Intersection, the analysis should show the project's total daily traffic contribution to the Deficient Intersection as well as the total traffic entering that intersection.

7. SANTIAGO CANYON ROAD ANALYSIS

Projects which increase the critical movement (the higher of the two directional movements) as measured on April 24, 1989, by one percent or more during the AM or PM peak hour on Santiago Canyon Road shall perform a level of service analysis using the previously specified methodology. The analysis shall address project plus existing, project plus three year projection, project plus five year projection in addition to buildout analyses required for general plan consistency evaluation.

8. SUMMARY OF IMPACTS

The report shall contain a listing of all adverse impacts created by the project. These include intersections presently operating at better than LOS D and projected to operate at worse than LOS D as a result of the project, intersections already operating at LOS D to which additional traffic is added by the project, and traffic added to Deficient Intersections.

9. MITIGATION MEASURES

If mitigations are required, their feasibility shall be determined. It is important to classify which mitigations:

- a. are solely in the control of the project proponent (such as widening adjacent to the proposed project),
- b. require approval of others or participation in a program (such as FCPP intersection widenings)
- c. require participation or regulatory action on the part of the County (such as prohibiting parking for intersection restripings).

The last section of the report shall contain a detailed description of mitigation measures proposed by the project. A list of these measures shall also be included in a summary at the beginning of the report.

VI. DEFICIENT INTERSECTION LIST

A. GENERAL

A deficient intersection is one that is under the sole control of the County which is currently operating at worse than LOS "D" as a result of factors outside the control of the County and which cannot be improved to at least LOS "D" solely by fees or improvements provided by new development. Each intersection must be studied to determine the Maximum Feasible Intersection (MFI) that could be reasonably expected to be built at the location if funding were available. This will serve as the basis for a cost estimate and the associated fee to be paid by development which contributes measurable traffic to the intersection. The MFI is anticipated to be an at-grade intersection for purposes of this analysis.

As part of the MFI study for each of the intersections on the Deficient Intersection List, the County will prepare cost estimates to modify the existing intersection to its MFI configuration. Any non-exempt development contributing measurable traffic to an intersection on the Deficient Intersection List shall contribute to the Deficient Intersection Fund in an amount equal to the amount of the project's traffic entering the intersection divided by the total traffic entering the intersection as measured in the 1990 Baseline traffic counts (counts will be taken in the fall of 1989), multiplied by the estimated cost to improve the intersection to its MFI condition as shown below:

$$(\text{Project Traffic} / \text{1990 Baseline Traffic Volume}) \times (\text{Total Improvement Cost})$$

When an intersection has been improved to its MFI condition, fees will no longer be collected for it.

B. DEFICIENT INTERSECTIONS

The following intersections constitute the present Deficient Intersection List:

1. Alicia Parkway at Muirlands Boulevard
2. El Toro Road at Avenida de la Carlota
3. El Toro Road at Muirlands Boulevard
4. El Toro Road at Rockfield Boulevard
5. Lake Forest Drive at Rockfield Boulevard
6. Lake Forest Drive at Trabuco Road
7. Los Alisos Boulevard at Muirlands Boulevard

C. PROCEDURE TO MODIFY DEFICIENT INTERSECTIONS LIST

Before any additional intersections are placed on the Deficient Intersection List a public hearing must be held by the Board of Supervisors. The Board will be asked to make specific findings with respect to intersections proposed for inclusion on or exclusion from the list. Those findings will require that:

1. The intersection operates at level of service E or F as defined by the County level of service policy.
2. The contribution to the critical movement(s) which determines the level of service at the intersection is a direct result of actions or factors over which the County has no control (e.g., ramp metering, adverse signal timing by state or neighboring city, city trip generation which uses County roadways as primary access routes, emergency services activities, etc.). Such contribution shall be identified by traffic counts and origin/destination data as appropriate.

Removal of an intersection from the Deficient Intersection List requires the Board of Supervisors find that one of the two above conditions no longer exists and is not expected to resume.

VII. COUNTY TRAFFIC MONITORING PROGRAM

In addition to the County's administration of the GMP, the County will be an active participant of the GMP by providing base condition traffic counts and levels of service. The County will also make available forecasts as part of the Development Monitoring Program (DMP).

Annually, from mid-September through mid-November, the EMA will take AM and PM peak hour turning movement counts at all intersections that may be considered by the GMP. These will be analyzed to determine the base level of service and critical movements for the upcoming calendar year.

The EMA will also take 24 hour directional traffic counts on Santiago Canyon Road. Due to the sensitivity of this road and the rapidly increasing traffic volumes, counts will be taken every six months, in April and October. After completion of all traffic counts, they will be incorporated into the County's latest Development Monitoring Report each January. The DMP will include existing volumes and levels of service and projections of traffic volumes and levels of service for periods of three and five years from present. It is from this basis project proponents should proceed with their analyses of the traffic impacts of their projects.

APPENDIX 4

PLANNING CRITERIA DETERMINING ARTERIAL HIGHWAY CLASSIFICATIONS

APPENDIX 4

PLANNING CRITERIA DETERMINING ARTERIAL HIGHWAY CLASSIFICATIONS

In order to evaluate the arterial classifications needed to serve current and future traffic conditions, certain criteria and assumptions are made regarding roadway capacities. The concept of capacity, and the relationship between capacity and traffic volumes is expressed by means of "levels of service". These recognize that, while there is an absolute limit to the amount of traffic that can travel through a given corridor (the "capacity"), conditions rapidly deteriorate as traffic reaches that level. As traffic approaches capacity, congested conditions are experienced. There is general instability in the traffic flow whereby small disruptions can cause considerable fluctuations in speeds and delays.

Levels of Service (LOS) are usually defined as categories, 'A' through 'F'. Beyond level of service 'E', capacity has been exceeded, and arriving traffic will exceed the ability of a given street to accommodate it. A description of the meaning of the six Levels of Service follows:

Level of Service	'A'	indicates no physical restriction on operating speeds
Level of Service	'B'	indicates stable flow with few restrictions on operating speed
Level of Service	'C'	indicates stable flow, higher volume, and more restrictions on speed and lane changing
Level of Service	'D'	indicates approaching unstable flow, little freedom to maneuver, and conditions intolerable for short periods
Level of Service	'E'	indicates unstable flow, lower operating speeds than LOS 'D', and some momentary stoppages
Level of Service	'F'	indicates forced flow operation at low speeds where the highway acts as a storage area and there are many stoppages

Tables A-4-1 and A-4-2 show the roadway capacity volumes the County utilizes for its circulation analysis for each type of facility. The data shown in both tables are intended to apply to General Plan level link volumes. (A link is the portion of the roadway between two arterial intersections.) Intersection capacities usually control overall roadway capacities; therefore, the County uses LOS 'C' for General Plan analysis purposes. Although LOS 'D' is more consistent with urban land uses, it has been found that using it uniformly tends to overload intersections (usually resulting in LOS 'E' or LOS 'F' at the intersections themselves). Therefore, the practice of the County when planning the arterial system is to use LOS 'C' for link capacities, with the intent of maintaining LOS 'D' through intersections.

ROADWAY DESIGN STANDARDS
Road Capacity Values*

Table A-4-1: Freeway/Transportation Corridors

Freeway Sizes	At Level of Service D
4 lanes	65,000
6 lanes	115,000
8 lanes	145,000
10 lanes	175,000
12 lanes	205,000

Table A-4-2: Arterial Highways

Type of Arterial	<u>Level of Service</u>					
	A	B	C	D	E	F
8 Lanes Divided	45,000	52,500	60,000	67,500	75,000	-
6 Lanes Divided	33,900	39,400	45,000	50,600	56,300	-
4 Lanes Divided	22,500	26,300	30,000	33,800	37,500	-
4 Lanes (Undivided)	15,000	17,500	20,000	22,500	25,000	-
2 Lanes (Undivided)	7,500	8,800	10,000	11,300	12,500	-

*Maximum Average Daily Traffic (ADT)

These roadway capacities are "rule of thumb" figures only, to be used at the General Plan level. They are affected by such factors as intersections (numbers & configuration), degree of access control, roadway grades, design geometrics (horizontal & vertical alignment standards), sight distance, level of truck and bus traffic, and level of pedestrian and bicycle traffic.

APPENDIX 5

CRITERIA FOR ADDING COMMUTER ARTERIAL TO MPAH MAP

APPENDIX 5

CRITERIA FOR ADDING FOR COMMUTER ARTERIALS TO MPAH MAP

1. Connects to facilities of two or more higher classification levels (primary arterial or higher level) and extends for more than one mile
2. Parallels a major arterial highway, and is longer than two miles
3. Has existing or projected ADT of 7,000 or more
4. Connects to a regional facility such as freeway or highway
5. Is a link to a major activity center (shopping centers, employment, etc.)

APPENDIX 6

ARTERIAL HIGHWAY CROSS CLASSIFICATIONS

APPENDIX 6

COMPARISON OF COUNTY AND CITY CROSS-SECTIONS

	COUNTY	ANAHEIM	BREA	BUENA PARK
A	CLASSIFICATION R-O-W # LANES CAPACITY	Scenic Expressway 148' 6-divided		
B	CLASSIFICATION R-O-W # LANES CAPACITY	Major 120' 6-Divided 45,000	Major 120' 6-Divided 45,000	Major 120' 6-Divided 45,000
C	CLASSIFICATION R-O-W # LANES CAPACITY	Mod Major 100' 6-Divided	Hillside Major 120' 6-Divided	Mod Major 100' 6-Divided
D	CLASSIFICATION R-O-W # LANES CAPACITY	Primary 100' 4-Divided 30,000	Primary 106' 4-6 Divided	Primary 100' 4-Divided 30,000
E	CLASSIFICATION R-O-W # LANES CAPACITY	Mod Primary 80' 4-Divided	Hillside Primary 106'-118' 6-Divided	Mod Primary 80' 4-Divided
F	CLASSIFICATION R-O-W # LANES CAPACITY	Secondary 80' 4-Undivided 20,000	Secondary 90' 4-Undivided	Secondary 80' 4-Undivided 20,000
G	CLASSIFICATION R-O-W # LANES CAPACITY		Hillside Secondary 66'-78' 4-Undivided	
H	CLASSIFICATION R-O-W # LANES CAPACITY	Commuter 56' 2-Undivided 10,000	Commuter 64' 2-Undivided	Commuter 60'-80' 2-Undivided 10,000
I	CLASSIFICATION R-O-W # LANES CAPACITY		Critical Intersection 114'-Major 130'-Primary 4-6 Divided	

	COSTA MESA	CYPRESS	DANA POINT	FOUNTAIN VALLEY	FULLERTON
CLASSIFICATION	Major	Major			
R-O-W	120'	120'			
A # LANES	6-Divided	6-Divided			
CAPACITY	45,000				
CLASSIFICATION			Major	Major	Major
R-O-W			120'	120'	100'
B # LANES			6-Divided	6-Divided	
CAPACITY			45,000		
CLASSIFICATION	Primary		Mod Major		
R-O-W	106'		100'		
C # LANES	6-Divided		6-Divided		
CAPACITY					
CLASSIFICATION		Primary	Primary	Primary	Primary
R-O-W		100'	100'	100'	80'-84'
D # LANES		4-6 Divided	4-Divided	4-Divided	
CAPACITY			30,000		
CLASSIFICATION			Mod Primary		
R-O-W			80'		
E # LANES			4-Divided		
CAPACITY					
CLASSIFICATION	Secondary	Secondary	Secondary	Secondary	Secondary
R-O-W	84'	84'	80'	80'	80'-84'
F # LANES	4-Undivided	4-6 Undivided	4-Undivided	4-Undivided	
CAPACITY			20,000		
CLASSIFICATION					
R-O-W					
G # LANES					
CAPACITY					
CLASSIFICATION	Commuter	Collector	Commuter	Commuter	Local
R-O-W	60'	64'	56'	56'	60'-64
H # LANES	2-Undivided	2-Undivided	2-Undivided	2-Undivided	
CAPACITY			10,000	10,000	
CLASSIFICATION					
R-O-W					
I # LANES					
CAPACITY					

	GARDEN GROVE	HUNTINGTON BEACH	IRVINE	LA HABRA	LA PALMA
CLASSIFICATION R-O-W A # LANES CAPACITY				Super Street 142'	
CLASSIFICATION R-O-W B # LANES CAPACITY	Major 120' 6-Divided	Major 120' 6-Divided 45,000	Thruway 132' 6-Divided	Major 120'	Major 120'
CLASSIFICATION R-O-W C # LANES CAPACITY				Mod Major 100' 6-Divided	
CLASSIFICATION R-O-W D # LANES CAPACITY	Primary 100' 4-Divided	Primary 100' 4-Divided 30,000	Parkway 116' 4-Divided	Primary 100' 4-Divided	Primary 100' 4-Divided
CLASSIFICATION R-O-W E # LANES CAPACITY				Mod Primary 80' 4-Divided	
CLASSIFICATION R-O-W F # LANES CAPACITY	Secondary 80' 4-Undivided	Secondary 80' 4-Undivided 20,000	Collector 100' 4-Undivided	Secondary 80' 4-Undivided	Secondary 80' 4-Undivided
CLASSIFICATION R-O-W G # LANES CAPACITY					
CLASSIFICATION R-O-W H # LANES CAPACITY	Local Street 2-Undivided				
CLASSIFICATION R-O-W I # LANES CAPACITY					

	LOS ALAMITOS	LAGUNA BEACH	LAGUNA NIGUEL & MISSION VIEJO	NEWPORT BEACH	ORANGE
CLASSIFICATION R-O-W		N/A		Major Augmented Variable	Augmented Major 120'
A # LANES				6-8-Divided	8-Divided
CAPACITY				52,000	
CLASSIFICATION R-O-W	Major 120'	N/A	Major 120'	Major 128'-134'	Major 120'
B # LANES	6-Divided		6-Divided	6-Divided	6-Divided
CAPACITY	45,000		45,000	45,000	
CLASSIFICATION R-O-W	Mod Major 100'	N/A	Mod Major 100'	Primary Augmented Variable	Augmented Primary 100'
C # LANES	6-Divided		6-Divided	4-6-Divided	6-Divided
CAPACITY				35,000	
CLASSIFICATION R-O-W	Primary 100'	N/A	Primary 100'	Primary 104'-108'	Primary 100'
D # LANES	4-Divided		4-Divided	4-Divided	4-Divided
CAPACITY			30,000		30,000
CLASSIFICATION R-O-W	Mod Primary 80'	N/A	80'	Mod Primary	Augmented Secondary 80'
E # LANES	4-Divided		4-Divided		4-Divided
CAPACITY					
CLASSIFICATION R-O-W	Secondary 80'	N/A	Secondary 80'	Secondary 84'	Secondary 86'
F # LANES	4-Undivided		4-Undivided	4-Undivided	4-Undivided
CAPACITY	20,000		20,000	20,000	
CLASSIFICATION R-O-W		N/A			
G # LANES					
CAPACITY					
CLASSIFICATION R-O-W	Commuter 2-Undivided	N/A	Commuter 56'		Commuter 66'
H # LANES	10,000		2-Undivided		2-Undivided
CAPACITY			10,000		
CLASSIFICATION R-O-W		N/A		8-Lane Divided 158'	
I # LANES				8	
CAPACITY				60,000	

		PLACENTIA	SAN CLEMENTE	SAN JUAN CAPISTRANO	SANTA ANA	SEAL BEACH
	CLASSIFICATION					
	R-O-W					
A	# LANES					
	CAPACITY					
	CLASSIFICATION	Major	Major		Major	Major
	R-O-W	120'				120'
B	# LANES	6-Divided	6-Divided		6-Divided	6-Divided
	CAPACITY					
	CLASSIFICATION	Mod Major				
	R-O-W	100'				
C	# LANES	6-Divided				
	CAPACITY					
	CLASSIFICATION	Primary	Primary	Primary	Primary	Primary
	R-O-W	100'		104'		100'
D	# LANES	4-Divided	4-Divided	4-Divided	4-Divided	4-Divided
	CAPACITY			over 20,000		
	CLASSIFICATION	Mod Primary				
	R-O-W	80'				
E	# LANES	4-Divided				
	CAPACITY					
	CLASSIFICATION	Secondary	Secondary	Secondary	Secondary	Secondary
	R-O-W	80'		84'		80'
F	# LANES	4-Undivided		4-Undivided	4-Undivided	4-Undivided
	CAPACITY			7,000-20,000		
	CLASSIFICATION	Mod Secondary				
	R-O-W	64'				
G	# LANES	4-Undivided				
	CAPACITY					
	CLASSIFICATION		Local Art'l	Commuter	Tertiary	Principal
	R-O-W			60'		
H	# LANES			2-Undivided	2-Undivided	2-Undivided
	CAPACITY			7,000		
	CLASSIFICATION					
	R-O-W					
I	# LANES					
	CAPACITY					

	STANTON	TUSTIN	VILLA PARK	WESTMINSTER	YORBA LINDA
CLASSIFICATION R-O-W A # LANES CAPACITY					
CLASSIFICATION R-O-W B # LANES CAPACITY	Major 120' 6-Divided	Major 120' 6-Divided		Major 120'-190' 6-Divided	Major 120' 6-Divided
CLASSIFICATION R-O-W C # LANES CAPACITY					
CLASSIFICATION R-O-W D # LANES CAPACITY	Primary 100' 4-Divided	Primary 100' 4-Divided	Primary 100' 4-Divided	Primary 100' 4-6 Divided	Primary 100' 4-Divided
CLASSIFICATION R-O-W E # LANES CAPACITY					
CLASSIFICATION R-O-W F # LANES CAPACITY	Secondary 80' 4-Undivided	Secondary 80' 4-Undivided	Secondary 80' 4-Undivided	Secondary 80' 4-Undivided	Secondary 80' 4-Undivided
CLASSIFICATION R-O-W G # LANES CAPACITY					
CLASSIFICATION R-O-W H # LANES CAPACITY				Local Streets 60'	
CLASSIFICATION R-O-W I # LANES CAPACITY					

APPENDIX 7

CRITERIA FOR MODIFIED ARTERIAL HIGHWAY FACILITIES

APPENDIX 7

CRITERIA FOR MODIFIED ARTERIAL HIGHWAY FACILITIES

1) Modified Major Arterials

- a. 100 feet ROW minimum
- b. 6 travel lanes
- c. No parking
- d. Capacity 45,000 ADT at LOS 'C'
- e. Separate left turn lane(s)

2) Modified Primary Arterials

- a. 80 feet ROW minimum
- b. 4 travel lanes
- c. No parking
- d. Capacity 30,000 ADT at LOS 'C'
- e. Separate left turn lane(s)

General

To find "modified" facilities, currently shown on the circulation plans of cities, consistent with similar facilities on the MPAH for the purposes of AHFP review, providing they meet these criteria.

APPENDIX 8

CRITERIA FOR CHANGING CONGESTED INTERSECTION LIST

APPENDIX 8

CRITERIA FOR CHANGING CONGESTED INTERSECTION LIST

1. Level of Service (LOS) is 'E' or 'F'
2. Maximum Feasible Intersection (MFI) not constructed
3. Intersection under the sole control of jurisdiction

APPENDIX 9

BIKEWAY PLANNING AND DESIGN

CHAPTER 1000 - BIKEWAY PLANNING AND DESIGN

Topic 1001 - General Information

The basis for the design of bikeways in Orange County is, in order of precedence, Chapter 1000 of the Orange County Highway Design Manual followed by Chapter 1000 of the Caltrans Highway Design Manual.

Topic 1002 - General Planning Criteria

The Master Plan of Countywide Bikeways (MPCB) should be consulted to determine if a master plan bikeway is planned on the highway being designed. If so, the design of the highway should conform to the Master Plan of Countywide Bikeways, as well as, the Master Plan of Arterial Highways.

Additional right of way may be required for a Class I bikeway.

Topic 1003 - Design Criteria

1003.1 Class I Bikeways

(1) Widths

The minimum paved width for a two-way Class I Bikeway as shown on the Master Plan of Countywide Bikeways, shall be 10 feet. A minimum 2-foot wide graded area measured from edge of pavement to hinge point shall be provided adjacent to each side of the trail pavement (see Figures 1003.1A and 1003.1B). Where the sideslope adjacent to the graded shoulder is steeper than 4:1, the downslope side shall have a 4-foot wide graded area measured from edge of pavement to hinge point adjacent to the trail pavement. For Master Plan Bikeways, where a deviation is allowed for widths less than 10 feet, a 3-foot wide graded area measured from edge of pavement to hinge point adjacent to each side of the trail pavement shall be provided. Paving is allowed within the graded area to reduce the maintenance costs or to provide for drainage facilities; e.g. curb and gutter (see Section 1003.1(14)).

Where heavy bicycle volumes are anticipated and/or significant pedestrian traffic is expected, the paved width of a two-way path should be greater than 10 feet, preferably 12 feet or more. Dual use by pedestrians and bicycles is undesirable, and the two should be separated wherever possible.

Additional pavement widening on the inside of horizontal curves may be required where the horizontal design speed criteria can't be met.

(2) Clearance to Obstructions

A minimum 2-foot horizontal clearance to obstructions shall be provided adjacent to the pavement (see Section 1003.1(14)). A 3-foot clearance is recommended. The minimum overhead clearance shall be 10 feet to account for the "shy factor" (e.g. bridge under crossings). Where a bike path doubles as a maintenance roadway, or where equestrians are present, overhead clearance shall be sufficient

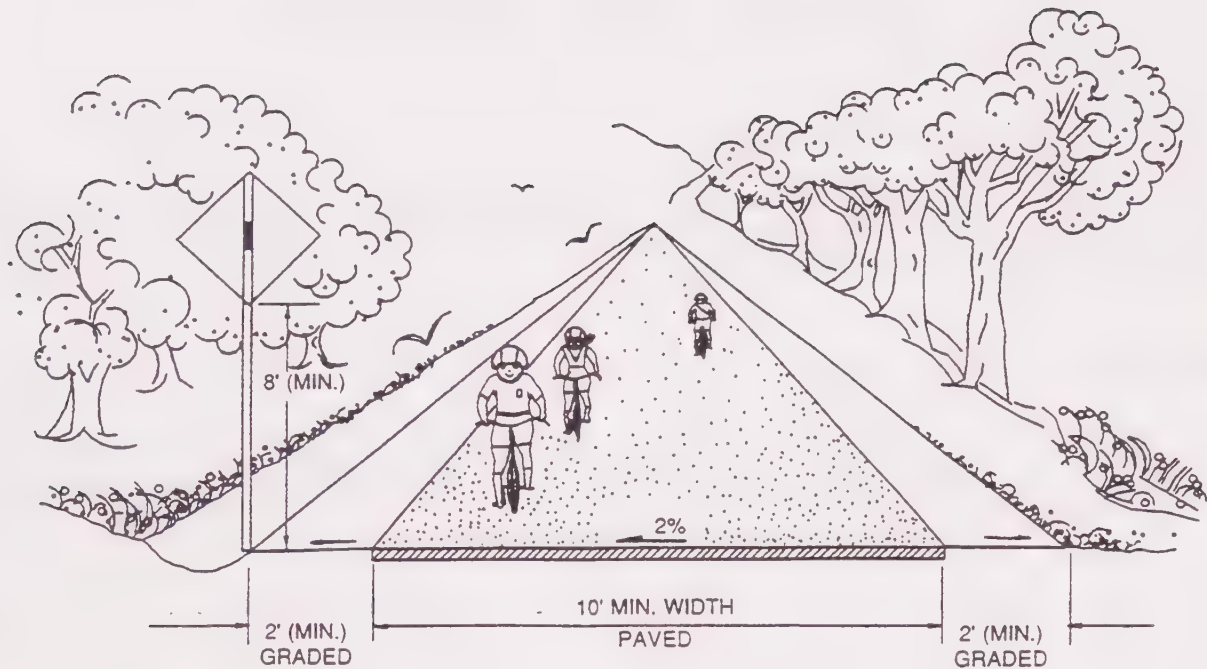
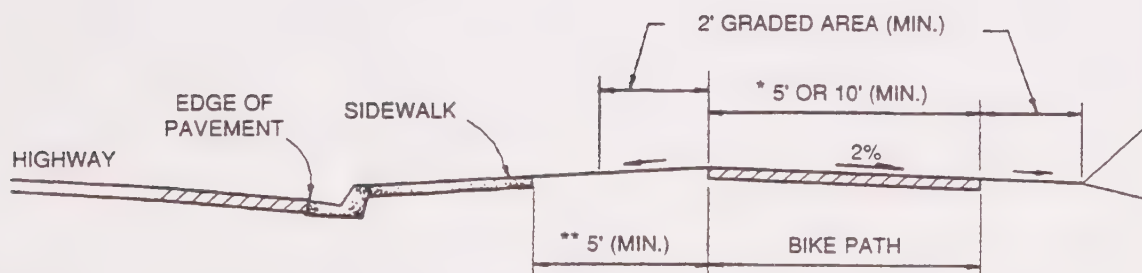


FIGURE 1003.1A

CLASS I BIKEWAY ON SEPARATE RIGHT OF WAY TYPICAL SECTION



- * ONE-WAY: 5' MINIMUM WIDTH
TWO-WAY: 10' MINIMUM WIDTH
- ** 5' SHALL BE MEASURED FROM CURB
FACE, IF NO SIDEWALK REQUIRED

FIGURE 1003.1B

CLASS I BIKEWAY ALONG HIGHWAY TYPICAL SECTION

to accommodate the anticipated maintenance vehicles or equestrian use. Minimum vertical clearance for equestrian use and for maintenance vehicles shall be 12 feet.

(3) Striping and Signing

A 4-inch yellow centerline stripe shall be placed to separate opposing directions of travel at bridge undercrossings or at other dips where bike trail gradient exceeds 5%. A 6-inch white edge stripe shall be placed for all trails with adjacent down slopes steeper than 4:1.

Yellow painted word or symbol warning markings on the pavement and/or signs shall be used to alert bicyclists where caution is warranted, such as substandard horizontal or vertical alignment, barrier posts, etc.. The size of word and symbol markings shall conform to the stencil size used by EMA, Public Works Operations Division.

(6) Bike Paths in the Median of Highways

Bikeways shall not be permitted in any median.

(7) Design Speed

The proper design speed for a bike path is dependent on expected type of use and on the terrain. The minimum design speed for bike paths should be 20 mph. In the case of bike paths on long downgrades (steeper than 4% and longer than 500 ft.) the minimum design speed should be 30 mph.

(12) Grades

<u>Maximum Desirable Sustained Grade (Percent)</u>	<u>Maximum Desirable Length (Feet)</u>
10.0 (use only in very extraordinary situations)	70
7.0 (maximum for ramps)	120
5.0 (maximum for normal situations)	170
4.5	330
4.0	600
3.5	850
3.0	1000
2.5	1300
2.0	1700

Where grades steeper than 7% cannot be avoided, signs indicating "Steep Grade" shall be provided.

(13) Structural Section

The structural section of the bikeway shall be determined by the Orange County Materials Engineer. Portland Cement Concrete (PCC) shall be used where adequate drainage is not provided and/or high moisture content is known to be present, or anticipated, in the subgrade (subdrains should be provided in these areas). Asphalt concrete (AC) shall conform to the requirements of Standard Plan 1805.

(14) Drainage

The bikeway shall have a cross slope of 2% to facilitate drainage of the trail. In addition, the graded shoulders adjacent to the bikeway shall slope away from the trail at 2% minimum, 5% maximum.

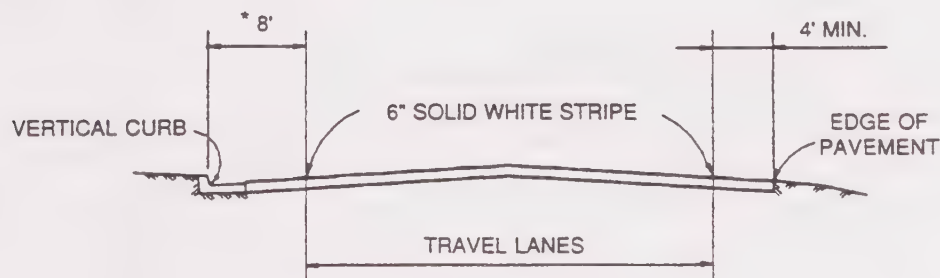
Minor drainage facilities are allowed in the graded area (graded area is described in (1) above); for example a curb and gutter to convey drainage would be allowed but the curb face shall be located no closer than the outside edge of the graded area (this actually requires extending the graded area further out in order to construct the curb). Drainage ditches shall not be located within this graded area unless the sideslope(s) of the ditch within the graded area is 5% or less.

Drainage from areas adjacent to bikeways shall not be permitted to flow across the bikeway. Drainage ditches of suitable dimension shall be provided to intercept such drainage. Where necessary to carry intercepted water across the bikeway, catch basins with drains (designed for "Q-10") shall be provided where a bike path crosses any drainage course.

1003.2 Class II Bikeways

(1) Widths

The width for a bike lane on a curbed street shall typically be 8 feet measured from the curb face, or 4 feet measured from the edge of pavement if there is no curb and gutter (see Figure 1003.2). A reduction in the bike lane width to a minimum of 5 feet, measured from the curb face, to facilitate restriping of an existing roadway for added turning lanes, is acceptable. Bike lanes shall be one-way facilities.



* 8' IS TYPICAL, ADDITIONAL WIDTH SHOULD BE PROVIDED IF PARKING IS ANTICIPATED. 5' MINIMUM IS ACCEPTABLE IF MORE WIDTH IS NECESSARY IN THE TRAVEL WAY OF EXISTING ROADWAYS TO PROVIDE FOR ADDITIONAL TURN LANES.

FIGURE 1003.2

CLASS II BIKEWAY ON HIGHWAY TYPICAL SECTION

APPENDIX 10

BIKEWAY DESIGNATION PLANNING GUIDELINES

APPENDIX 10

BIKEWAY DESIGNATION PLANNING GUIDELINES

The following are basic guidelines which are used to plan the appropriate bikeway class designation. These guidelines, combined with safety factors, development feasibility, cost, and aesthetics are used to evaluate each route and assure the most compatible class of bikeway is developed. It is, however, to be recognized that constraints as to the amount of right-of-way available, topographic considerations, and other factors do not always permit strict conformance with these guidelines.

CLASS I BIKEWAY (BIKE PATH OR TRAIL):

1. Motor vehicle average daily traffic (ADT) greater than 5,000 in the outside travel lane
2. Bicycle volume very high
3. Criteria for shared route or bicycle lane are not met
4. Availability of space for development
5. Serves schools and playgrounds in urban areas, if right-of-way is available
6. Serves a bicycle demand which would otherwise have to be served by a high speed arterial with heavy traffic volumes
7. Bypasses constructed areas where right-of-way constraints preclude the development of bicycle lanes
8. Along natural or man-made features which have few cross roads, such as streams, flood control channels, abandoned railroads, utility easements, etc., where these features correspond, to a reasonable degree, with desired routes for bicycle travel

Class I Bikeway Width

The minimum paved width of the two-way Class I Bikeways listed on the Master Plan of Countywide Bikeways shall be 10 feet with a 2-foot wide graded area immediately adjacent to each side of the trail pavement. In instances where there is restricted right-of-way due to physical limitations, such as a narrow bridge or severe topography, an 8-foot wide bike path is permissible as necessary. In such instances the graded area adjacent to the bike path may be reduced as necessary from the required 2 feet.

CLASS II BIKEWAY (BIKE LANES):

1. Motor vehicle ADT in the outside lane between 2,000 - 5000
2. Bicycle volume high
3. 85th percentile speed of arterial of 40 mph or more
4. Heavy truck traffic of arterial at 5% of ADT or more
5. Adequate outside lane dimension

Class II Bikeway Widths

A bicycle lane must be a minimum of 4 feet wide and should provide at least 3 feet between the traffic lane and the longitudinal joint at the concrete gutter, since the transition between the gutter and street may not be smooth. On arterial highways without curbs and gutters a minimum of 4 feet is required.

Where parking is permitted, a minimum width of 12 feet is required to accommodate both the parking lane and the bike lane. The bike lane must be at least 5 feet wide and located between the motor vehicle travel lane and the parking lane. If Bike lanes are to be located on one-way streets, they should be placed on the right side of the street minimizing left turn conflicts with motorists.

CLASS III BIKEWAY (BIKE ROUTES):

1. Motor vehicle (ADT) in the outside lane less than 2,000
2. Bicycle volume moderate
3. 85th percentile speed on adjacent lane of 32 mph or less
5. Adequate space available in the outside lane dimension

APPENDIX 11

BIKEWAY ROUTE ADDITION AND DELETION CRITERIA

APPENDIX 11

BIKEWAY ROUTE ADDITION AND DELETION CRITERIA

Amendments to the Master Plan of Countywide Bikeways(MPCB) may be processed up to a maximum of three times a year as an amendment to the Transportation Element. Such amendments can be generated through city requests, land use policy changes, cooperative transportation studies, and site planning (e.g., Local Coastal Plans and corridor studies, etc.).

When a new bicycle route is recommended for addition to the MPCB, it must meet at least three of the following criteria. All routes must meet the spacing or distance criterion, or service a major activity center. Those proposed under the major barrier criterion are given special consideration for their regional significance. All proposed routes will be evaluated for their continuity with the existing MPCB network.

Criteria for adding a proposed route to the MPCB:

1. **Continuity:** Does the trail in question provide continuous travel from one regional route to another? Does it close gaps in the system?
2. **Service to Major Activity Centers:** Does the proposed trail provide access to one or more of the following: schools, commercial centers, industry, beaches, parks, etc.?
3. **Intergovernmental Coordination:** Are one or more agencies involved in planning or implementing the trail?
4. **Connectivity:** Does the trail provide access to other regional routes?
5. **Spacing or Distances:** Is the trail at least a mile or more apart from other parallel regional routes? (There are exceptions to this criterion, such as major barriers).
6. **Major Barriers:** Is the trail separated from an established parallel regional route by geographic barriers such as rivers, freeways, etc.? Projects must have regional significance for this criterion to apply.
7. **Realignment:** Does an alternative route with equal or better safety, right-of-way, or access considerations exist?

Criteria for deleting routes from the MPCB. Proposed deletions should meet one or more of these four criteria:

1. **Alternate Routes:** An alternate route is proposed (where possible) for safety considerations and/or insufficient right-of-way both on and off

road to accommodate a bikeway.

2. **Arterial Highways:** The trail was originally proposed to run on, or adjacent to a proposed arterial highway that has since been deleted from arterial highway plans.
3. **Lack of Community Support:** The trail was deleted by the appropriate city council and/or Board of Supervisors through citizen requests.
4. **Physical Constraints:** The trail is impractical due to relevant physical factors such as grade, right-of-way, or environmental resources, etc.

APPENDIX 12

COUNTY DESIGNATED SCENIC HIGHWAYS AND CANDIDATE CORRIDORS

APPENDIX 12

COUNTY DESIGNATED SCENIC HIGHWAYS

The following routes are County designated scenic highways.

TYPE 1: VIEWSCAPE CORRIDORS

Antonio Pkwy	From	Avenida de las Banderas	To	Ortega Hwy
Carbon Cyn Rd	From	Carbon Canyon Regional Park	To	San Bernardino County Line
Chapman Ave	From	Newport Blvd	To	Weir Cyn Rd
El Toro Rd	From	SJHTC	To	Laguna Cyn Rd
	From	Santa Margarita Pkwy	To	Live Oak Cyn Rd
Laguna Cyn Rd	From	Big Bend	To	Lake Forest Dr
Live Oak Cyn Rd	From	Santiago Cyn Rd	To	O'Neill Park
Newport Blvd	From	Crawford Cyn Rd	To	Santiago Cyn Rd
Ortega Hwy	From	La Pata Ave	To	Riverside County Line
Oso Pkwy	From	2,000' e/o Olympiad Rd	To	Coto de Caza Dr
PCH/San Diego Fwy	From	Los Angeles County Line	To	San Diego County Line
Plano Trabuco Rd	From	Rose Cyn Rd	To	Coto de Caza Dr
Riverside Fwy (SR-91)	From	Newport-Costa Mesa Fwy (SR-55)	To	Riverside County Line
Rose Canyon Rd	From	Live Oak Cyn Rd	To	Plano Trabuco Rd
Santa Margarita Pkwy	From	Melinda Rd	To	Avenida Empresa
Santiago Cyn Rd	From	Weir Cyn Rd	To	Live Oak Cyn Rd
Trabuco Creek Rd	From	San Diego Fwy	To	Crown Valley Pkwy
Weir Canyon Rd	From	Santiago Cyn Rd	To	Riverside Fwy

TYPE 2: LANDSCAPE CORRIDORS

Alicia Pkwy	From	Aliso Creek Rd	To	Paseo de Valencia
Antonio Pkwy	From	Avenida Empresa	To	Avenida de las Banderas
Camino del Avion	From	Crown Valley Pkwy	To	Del Obispo St
Crown Valley Pkwy	From	San Diego Fwy	To	PCH
El Toro Rd	From	SJHTC	To	Santa Margarita Pkwy
La Paz Rd	From	Crown Valley Pkwy	To	Paseo de Valencia
Moulton Pkwy	From	Crown Valley Pkwy	To	San Diego Fwy
Niguel Road	From	Crown Valley Pkwy	To	PCH
Ortega Hwy	From	Antonio Pkwy	To	San Diego Fwy

Oso Pkwy	From	Alicia Pkwy	To	2,000' e/o Olympiad Rd
San Joaquin Hills Rd	From	MacArthur Blvd	To	Sand Cyn Rd
Santa Margarita Pkwy	From	El Toro Rd	To	Melinda Rd
	From	Avenida Empresa	To	Plano Trabuco Rd
St of the Golden Lantern	From	Crown Valley Pkwy	To	Dana Point Harbor Dr
Trabuco Cyn Rd	From	Live Oak Cyn Rd	To	Rose Cyn Rd
Unnamed Arterial	From	Santa Margarita Pkwy	To	Antonio Pkwy

CANDIDATE CORRIDORS

SJHTC	From	Bonita Cyn Dr	To	I-5
Sand Cyn Rd	From	SJHTC	To	Pacific Coast Hwy
Laguna Cyn Rd	From	Existing	To	Pacific Coast Hwy
Crown Valley Pkwy	From	Trabuco Creek Rd	To	Wagon Wheel Cyn Reg Park
Antonio Pkwy	From	Existing	To	Southward
Foothill TC	From	Eastern TC	To	S of County line
Jeffrey Rd	From	Irvine Blvd	To	Santiago Cyn Rd
SR-57	From	N of Hwy 90	To	Carbon Cyn Reg Pk
Tonner Cyn Rd	From	SR-57	To	Carbon Cyn Reg Pk
Eastern TC	From	I-5	To	SR-91

APPENDIX 13

SCENIC HIGHWAYS CORRIDOR IMPLEMENTATION PLANNING GUIDELINES

APPENDIX 13

SCENIC HIGHWAY CORRIDOR IMPLEMENTATION PLANNING GUIDELINES

Scenic Highway Corridor implementation plans shall include, but not be limited to the following points:

- o A description of the location of the highway and reasonable boundaries of the scenic corridor and the scenic features to which the plan and development standards apply.
- o A description of how the scenic highway is integrated with the other General Plan Elements and on-going planning studies.
- o Specification of the treatment and protection the highway and corridor are to receive, i.e. land use controls, land acquisition needs, construction standards, and type and location of complementary facilities. Where applicable, establishment of regulations and guidelines regarding building heights and setbacks; signs and outdoor advertising; placement of utilities and undergrounding of utility lines; cover and screening of earthwork operations; erosion control; preservation of the natural conditions of bodies of water; preservation and restoration of plant material; clearing for views; site planning, and architectural and landscape design in private developments; property maintenance; and public uses within the corridor.
- o Identification of vista points, and roadside rest and parking areas which may be appropriate for development in the scenic corridor.
- o Specification of measures to be implemented to preserve outstanding scenic features within the scenic highway corridor which help to define the character of the corridor.
- o Specification of responsibility for implementing the features of the specific plan.
- o Specification of the source(s) of funding.

APPENDIX 14

CASE STUDY: LIVE OAK CANYON ROAD/TRABUCO CANYON ROAD

APPENDIX 14

Case Study: Live Oak Canyon Road/ Trabuco Canyon Road

INTRODUCTION:

The Master Plan of Scenic Highways (MPSH) currently exhibits three scenic highway corridor links which do not appear on the Master Plan of Arterial Highways (MPAH). These corridors are:

1. Live Oak Canyon Road between Rose Canyon Road and Trabuco Canyon Road.
2. Trabuco Canyon Road between Rose Canyon Road and Robinson Ranch Road.
3. Trabuco Canyon Road between Live Oak Canyon Road and Rose Canyon Road.

These links appear on the MPSH because of their scenic qualities, but lack the traffic volumes, width and/or turning radii to be considered arterial on the MPAH.

DISCUSSION:

Live Oak Canyon Road and Trabuco Canyon Road serve as scenic connections through Trabuco and Live Oak Canyons to O'Neill Park. These links also serve as an alternative through route from El Toro Road to Plano Trabuco/Coto de Caza. The major through route, however, carrying heavier traffic volumes is Portola Parkway. Live Oak Canyon Road and Trabuco Canyon Road are not planned to be improved to arterial highway standards in the future and therefore are anticipated to remain rural scenic routes.

The majority of scenic highways shown on the MPSH are also designated arterial highways on the MPAH. This MPAH/MPSH consistency is beneficial in that MPAH roadways have approved typical sections which can be used to set the basic parameters for scenic highway cross-sections. However, consistency with the MPAH is not a necessary prerequisite for placing a scenic highway on the MPSH. The three links described above, although they do not have MPAH status, were determined to exhibit unique and/or special visual features worth protecting thus meeting the goal of the Scenic Highways Component. Development of these three links as Scenic Highways is to be guided by a Specific plan as provided for in the Scenic Highway Implementation Planning Guidelines (Appendix A) and subject to approval by the Directors of Regulation and Planning.

APPENDIX 15

BOARD OF SUPERVISORS RESOLUTION, SEPTEMBER 22, 1981

1
2
3 RESOLUTION OF THE BOARD OF SUPERVISORS OF
4 ORANGE COUNTY, CALIFORNIA

5 September 22, 1981

6 On motion of Supervisor Clark, duly seconded and carried, the
7 following Resolution was adopted:

8 WHEREAS, the Environmental Management Agency and the Administrative
9 Office, pursuant to Board direction, have developed with the Orange
10 County Transit District a Memorandum of Understanding (MOU) providing
11 for design guidelines and transit/land use coordination procedures
12 between the two agencies and said MOU has been presented this date to
13 this Board;

14 NOW, THEREFORE, BE IT RESOLVED that this Board hereby:

15 1. Authorizes the Chairman of this Board to sign the MOU on
16 behalf of the Board of Supervisors.

17 2. Authorizes the Director of the Environmental Management
18 Agency to carry out the provisions of the MOU.

19
20 AYES: SUPERVISORS RALPH B. CLARK, THOMAS F. RILEY, ROGER R. STANTON,
21 HARRIETT M. WIEDER, AND BRUCE NESTANDE

22 NOES: SUPERVISORS NONE

23 ABSENT: SUPERVISORS NONE
24

25
26
27
28 Resolution No. 81-1396
Transit District/Co. Planning Coordi-
nation MOU

CDB:hp

-1-

A-15-1

RECEIVED
SEP 30 1981
E.M.A.


OFFICE OF
COUNTY CLERK
ORANGE COUNTY

(23) F0192-210 (5/77)

1 STATE OF CALIFORNIA)
2 COUNTY OF ORANGE) ss

3 I, JUNE ALEXANDER, Clerk of the Board of Supervisors of Orange
4 County, California, hereby certify that the above and foregoing Resolution
5 was duly and regularly adopted by the said Board at a regular meeting
6 thereof held on the 22nd day of September, 1981, and passed
7 by a unanimous vote of said Board.

8 IN WITNESS WHEREOF, I have hereunto set my hand and seal this
9 22nd day of September, 1981.

10
11 
12 JUNE ALEXANDER
13 Clerk of the Board of Supervisors
14 of Orange County, California
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OFFICE OF
COUNTY COUNSEL
ORANGE COUNTY

(1), F0192-211 (3/77)

I

PREAMBLE

This memorandum of understanding is entered into this 22nd day of September, 1981, between the County of Orange (hereinafter referred to as the County) and the Orange County Transit District (hereinafter referred to as the District), a public transit operator, for the purpose of assuring cooperative, effective and coordinated land use and transit planning, within the County of Orange.

II

RECITALS

- A. The County, which is recognized as a legal subdivision of the State of California pursuant to Section 23000 of the California Government Code, is the agency responsible for comprehensive planning within the County of Orange.
- B. The District, established pursuant to Section 40000 of the California Public Utilities Code, is the principal provider of public transit service within the County of Orange.
- C. The District and the County have common interests in the coordinated and balanced growth of the County of Orange and under the provisions of Article 7, Section 65067 of the California Government Code desire to coordinate land use and transit planning within the County of Orange.
- D. The County and the District also recognize that the rapid growth and expansion of the County of Orange creates increased demand for transit service and facilities and that the respons-

1 ability for meeting this demand should be shared by the private
2 sector.

3 III

4 COOPERATIVE AGREEMENT

5 Now, therefore, in consideration of the mutual benefits to the
6 parties hereto, to land use and mass transportation within the
7 County of Orange, and in consideration of the covenants and condi-
8 tions herein contained and all provisions required by Federal and
9 State laws, administrative directives and guidelines, the parties do
10 hereby agree as follows:

- 11 A. That the County shall coordinate and consult with the District
12 in the development of transportation/circulation and land use
13 elements, and any amendments thereof, of the General Plan.
- 14 B. That the County shall ensure that transit impacts are
15 considered and addressed in any environmental documents
16 required by the County.
- 17 C. That the District shall provide the County the service and
18 design policies, guidelines and standards adopted by the
19 District's Board of Directors as the basis for determining
20 transit operation and facility requirements. The County shall
21 include those design standards it considers appropriate, with
22 modifications if necessary, in the County's Standard Plans.
- 23 D. That the County shall periodically review and update policies
24 which recognize the benefit of land uses that are supportive of
25 public transit such as high density development along existing
26 and proposed major transit corridors and routes, and to ensure

1 that the site plans and land subdivisions provide reasonable
2 transit/pedestrian accessibility.

3 E. That the County shall coordinate the review of land development
4 plans with the District by notifying the District when a
5 development is proposed which could potentially affect existing
6 or proposed transit facilities and services. The proposal may
7 be in the form of a conceptual plan, general plan amendment,
8 zone change, subdivision map, conditional use permit or other
9 similar documents. The County shall notify the District in the
10 earliest development stage by referring a copy of the
11 development proposals to the District.

12 F. That upon review of the document submitted by the County, the
13 District shall inform the County as to the locations and types
14 of transit facilities required or desired for the transit
15 service for the proposed development within the time limit
16 specified by the County.

17 G. That the County shall consider the District's recommendations
18 and may incorporate the necessary transit facilities into
19 developments by modifying the development plans or by placing
20 conditions, where feasible, on the development that will
21 require the developer to construct and dedicate or maintain
22 said facilities. The County shall consult with the District,
23 when it finds that deviation from the District's recommenda-
24 tions is appropriate. The County shall be responsible for
25 overseeing the implementation of those conditions which are
26 agreed upon.

H. That the County will consider the enactment of an ordinance exercising the authority granted them by Section 66475.2 of the California Government Code requiring the dedication of land in certain development situations for transit facilities or accessibility.

I. This Memorandum of Understanding may be amended only by written agreement of both parties.

Dated: September 22, 1981.

COUNTY OF ORANGE, a political subdivision of the State of California

By Ralph B. Clark
Chairman, Board of Supervisors

ATTEST:
June Alexander
June Alexander
Clerk of the Board of Supervisors

RECOMMENDED FOR APPROVAL:

By M. Storm
Murray Storm
Director, Environmental
Management Agency

APPROVED AS TO FORM:
ADRIAN KUYPER, COUNTY COUNSEL

By _____
Carol D. Brown, Deputy

ORANGE COUNTY TRANSIT DISTRICT

By Ralph B. Clark
Chairman, Board of Directors

ATTEST:
Patricia B. Scanlan
Patricia B. Scanlan
Clerk of the Board of Directors
Approved by Bd. of Dir. on 8/17/81

RECOMMENDED FOR APPROVAL:

By James P. Reichert
James P. Reichert, General Manager

APPROVED AS TO FORM:

By Kennard R. Smart, Jr.
Kennard R. Smart, Jr.
General Counsel



APPENDIX 16

LIST OF MAJOR TRANSPORTATION STUDIES AND IMPLEMENTING PROGRAMS

APPENDIX 16

LIST OF MAJOR TRANSPORTATION STUDIES AND IMPLEMENTATION PROGRAMS

Below is a partial list of major transportation planning studies and existing implementing programs that affect transportation planning in Orange County.

<u>State Plans and Programs</u>	<u>Responsible Agency</u>	<u>Year</u>
Transportation Improvement Plan	CTC	Annual
<u>Regional Plans and Programs</u>	<u>Responsible Agency</u>	<u>Year</u>
Regional Transportation Plan	SCAG	Annual
Regional Transportation Improvement Plan	SCAG	Annual
<u>Subregional Transportation Plans</u>	<u>Responsible Agency</u>	<u>Year</u>
Preliminary Transportation Plan	County	1974
Multi-Modal Transportation Study	OCTC	1980
Santa Ana Transportation Corridor Alternative Analysis	OCTD/ OCTC	1981
North/South Central Orange County Corridor Study	OCTC	1982
Beach Boulevard Corridor Study	OCTC	1982
Route 55 Transportation Study	Caltrans	1982
Route 5/55 Interchange Reconstruction Study	Caltrans	1982
Pacific Coast Highway Widening Feasibility Study	EMA	1982
Orange County Transportation Improvement Plan	OCTC	Annual
<u>Countywide Circulation Plans</u>	<u>Responsible Agency</u>	<u>Year</u>
Southeast Orange County Circulation Study	EMA	1976
Northeast Orange County Circulation Study	EMA	1978
Central Orange County	EMA	1978
Capistrano Valley Circulation Study	EMA	1979
San Joaquin Hills Transportation Corridor Study	EMA/TCA	1979

San Clemente Hills Circulation Study	EMA	1980
North Orange County Circulation Study	EMA	1981
Foothill Transportation Corridor Study	EMA/TCA	1981
Eastern Transportation Corridor Study	TCA	1981
High Flow Arterial Concept Study	OCTC	1982
Moulton Parkway Corridor Feasibility Study	EMA	1982
Northern El Toro Traffic Study	EMA	1987
El Toro/Laguna Hills Traffic Study	EMA	1988
Foothill Circulation Phasing Plan	EMA	1988
CARITS	EMA	1988

Other Related Transportation Plans and Studies

	<u>Responsible Agency</u>	<u>Year</u>
OCTD Alternative Transit Corridor Study	OCTD	1974
Transfer Center Needs Study	OCTD	1981
OCTD Short Range Transit Plan	OCTD	Annual
Bicycle Trails - A Feasibility Study of Bicycle System	County	1973
SR 57 Extension		

APPENDIX 17

CURRENT CONDITIONS AND FUTURE DEMAND

APPENDIX 17

CURRENT CONDITIONS AND FUTURE DEMAND

A. GROWTH PATTERNS

Since its official birth in 1889, Orange County has been transformed from a mere Los Angeles suburban area to a new and independent metropolitan area. The most significant growth has occurred with regard to population, housing and employment (Charts A-17-1 through A-17-3) which, in turn, affects transportation patterns and helps define the current transportation facilities and travel patterns.

1. Demographic Patterns

Orange County's population growth rate reached its peak during the 1960's (over 20 percent per year), declined sharply during the 1970's, and has maintained at about 2 percent per year during the 1980's (Chart A-17-1). While early population growth concentrated in the North County (north and east of SR's 55/91), recent growth has occurred in South County (east and south of SR's 55/91), shifting spatially the needs for roadways and other infrastructure facilities.

2. Housing Patterns

The County's housing construction has recently caught up with its population growth rate (Chart A-17-2). The spatial distribution of recent housing construction is parallel to population and employment, oriented toward the south (Chart A-17-3).

3. Employment Patterns

Historically, Orange County residents commuted to Los Angeles for job opportunities. More recently, the County's employment base has expanded significantly. Presently, almost three quarters of Orange County's residents work in the county as do many residents from the nearby counties of Riverside, Los Angeles, San Diego and San Bernardino. While peak hour directional orientation to and from employment centers in Los Angeles County still exists, it is in competition with trips to and from major employment centers within Orange County (Map A-17-12). In the past, employment and associated traffic patterns in the County centered on commercial and industrial uses adjacent to the Santa Ana Freeway Corridor. This pattern is becoming less pronounced as employment centers are being developed in areas away from this freeway corridor.

Orange County's travel patterns can also be observed from the relationship between job availability and housing stock. Historically, Orange County was housing-rich and job-poor. This resulted in many of its residents commuting to work in Los Angeles County. However, in

1984 Orange County reached a similar job/housing ratio to Los Angeles.

This has reduced the number of work trips oriented to Los Angeles County from Orange County and encouraged reverse commuter trips to Orange County.

Presently, Orange County is job-rich but housing-poor. As a result, an increasing number of residents of the neighboring counties of Riverside, Los Angeles, San Bernardino and San Diego commute to work in Orange County.

B. RECENT TRANSPORTATION PLANNING EFFORTS

1. Overview

Originally, the State freeway and highway programs for Orange County were administered by District 7, located in Los Angeles County. Growing awareness of local needs and opportunities led to the creation of District 12 in Orange County in 1988 (Assembly Bill 696).

In recent years, the County has become actively involved in the planning of major transportation corridor facilities, traditionally the purview of the State and Federal government. Since the initial adoption of the Master Plan of Arterial Highways (MPAH) in 1956, several major circulation/transportation studies have been conducted by the County which have given direction to the evolution of the County's and cities' circulation plans and other transportation plans (see Appendix 16).

In 1979, Orange County initiated a requirement for an Annual Monitoring Report (AMR) as part of the Development Monitoring Program to ensure consistency between land use, growth and the provision of infrastructure. This program was further defined on August 3, 1988, with adoption by the Board of Supervisors of the Growth Management Plan (GMP) Element and the GMP Transportation Implementation Manual on June 8, 1989.

Currently, the (MPAH) serves as the County's regional circulation plan. The Orange County Environmental Management Agency (EMA) is responsible for the planning and implementation of this circulation plan in unincorporated areas, and works with cities and other agencies to implement the plan countywide.

2. Road Programs and Funds

Traditionally, freeways and State highways have been financed by Federal and State funds collected through taxes on gasoline. These resources have dwindled by comparison to need for improvements. Increasingly, the County has sought financial alternatives such as developer contribution/fees to expedite local roadway improvements.

New and innovative financing programs relating to provision of transportation facilities have been developed by the County to reduce the funding shortfall. Based on Government Code Sections 50029 and 66484.3, and California Constitution Article 11, Section 7, the County has adopted several Major Thoroughfare and Bridge Road Fee Programs.

These include the Coastal Area Road Improvements and Traffic Signals (CARITS), Moulton Parkway/Laguna Niguel Fee Program (MPLN), Foothill Circulation Phasing Plan (FCPP), El Toro Road Fee Program, the San Joaquin Hills Transportation Corridor (SJHTC) and the Foothill/Eastern Transportation Corridor (FETC), to fund transportation improvements. These programs are financed largely by the contributions of new developments which benefit from the transportation facilities to be built.

Besides fee programs, Orange County has three county-level matching fund programs for funding street and arterial highway projects. To encourage cities to develop and maintain circulation plans that are consistent with the MPAH, the County provides financial assistance through the Arterial Highway Financing Program (AHFP). Such funding is available for arterial highway projects only within cities that have circulation elements consistent with the County's MPAH. In addition to the County program, the Orange County Transportation Commission (OCTC) sponsors a similar program known as the Orange County Unified Transportation Trust Fund (OCUTT). OCTC is responsible for administering Federal Aid Urban (FAU) Funds for improvements to County arterial highways.

C. EXISTING TRANSPORTATION FACILITIES AND CONDITIONS

The majority of trips in Orange County are made by automobile, utilizing a system of freeways and arterial streets and highways. A fraction of the trips are made by other modes of transportation such as transit buses, commuter rail, bicycling and walking. Below is a brief description of the existing system of freeways, arterial highways, transitways and bikeways.

1. Existing Freeways and Highways

The State Freeway and Expressway System, shown on Map A-17-13, illustrates existing and planned freeways and highways in Orange County. Transportation patterns are reflected in the distribution of existing roadway mileages, with 3,616 lane miles in North County and 1,183 lane miles in South County. The roadway system in North County was developed in a grid pattern and is essentially built. On the contrary, the roadway system in South County is irregular due to its topography, and continues to be built as development occurs.

Delays in completing the planned freeways on the State Freeway and Expressway System in a timely manner has seriously impaired the traffic carrying capabilities of highway facilities in Orange County. The County's freeway system of 137 miles was constructed almost entirely between 1955 and 1965. Since 1966, only two new freeway projects have been added: 1) SR 57 was extended from SR 91 to I-5 near Anaheim Stadium; and 2) two miles of SR 73 were added near John Wayne Airport.

Existing ADT volumes on some of the freeway system, as shown in Map A-17-3, far exceed the capacities of these facilities. This has resulted in poor levels of service, characterized by severe congestion and low travel speeds during peak periods.

The rapid growth in employment and population, and the continued predominance of single occupant vehicle ridership has drastically increased the number of auto trips being made on the freeway and

highway system, and is one of the primary factors contribution to the severe congestion experienced during peak hours. To cope with capacity deficiency on many freeways and highways, improvements and programs which emphasize the use of high occupancy vehicle ridership are being undertaken to improve the efficiency of travel in the County.

2. Arterial Highway System

In North County, the system of arterials is essentially in place and is spaced at about one-mile intervals and laid out on a north/south and east/west grid pattern. In South County, however, the arterial network is in various stages of planning and development and is less structured than in North County, due to environmental constraints.

Many arterial highways paralleling freeways and state highways experience severe congestion during peak hours. This is due to congestion on the freeway and highway system which results in traffic spilling over onto arterial highways.

In order to alleviate the current congestion on the arterial system, the County and a number of cities have begun developing Transportation Systems Management (TSM) programs designed to improve the efficiency of travel and optimize the capacity of the highway network. TSM programs include such techniques as the removal of on-street parking to provide for additional travel lanes or dual left turn lanes; spot elimination of parking to provide for turning lanes; upgrading of signals to better handle turn movements; coordination of signals to facilitate better flow; car and van pool commuter programs, and various traffic and access control measures.

3. Transit Service

Transit service in Orange County is provided by a number of public transit agencies and private carriers. Regional service is primarily provided by the Southern California Rapid Transit District (which links Orange, Los Angeles and Riverside Counties), AMTRAK, and Greyhound serving San Diego, Orange and Los Angeles Counties. The Orange County Transit District (OCTD) provides public transit service within Orange County and to connections to adjacent of Los Angeles and Riverside counties. OCTD also coordinates and promotes a countywide ridesharing program. Additional local transit service is provided by the Laguna Beach Municipal Transit Lines.

4. Bikeways

The existing bikeway system encompasses a coordinated system of state and county regional bikeways complemented by local bicycle routes. It provides an alternative transportation mode for commuting, shopping and traveling to educational institutions as well as recreational areas.

D. GROWTH PROJECTIONS

The horizon year of the County's General Plan buildout is Post 2010 (P2010). All projections and analyses of the physical and socioeconomic conditions in the County are keyed to this time frame. For referenced data, see Charts A-17-4 through A-17-11 at the end of this appendix.

Below is a discussion of future demographic, housing, employment and transportation trends in the County.

1. Demographic Trends

While North County will retain the majority of Orange County's population throughout the year 2010, the population growth trends indicate that in the immediate future the need for new transportation facilities will be more pronounced in South County than in North County.

2. Housing Trends:

By the year 2000, Orange County is forecast to reach more than one million dwelling units. The spatial distribution of new residential construction is similar to population, skewed slightly toward South County. A transportation system to service this trend should be a key consideration in the overall future planning efforts of the County.

3. Employment Trends:

Orange County is a major employment center in Southern California. By the year 2010, the County is forecast to provide more than 1.8 million jobs to its residents. South County is projected to receive about 50 percent of the new jobs created between 1990 and 2010. This will improve the job/housing balance in South County and may help to reduce long commute trips from southern county communities that is currently observed on the circulation system.

E. PLANNED TRANSPORTATION FACILITIES

Below is a description of on-going short and long range transportation planning programs that affect future transportation facilities and conditions in Orange County.

1. Short Range

Short range roadway improvement plans in Orange County are typically adopted annually by each city, the County, CalTrans, the Orange County Transit District (OCTD) and the Orange County Transportation Commission (OCTC). Each jurisdiction or agency maintains this information for its area of responsibility.

In the unincorporated County, short term programs have, historically, depended on anticipated gas tax revenue for the year. Because short term needs have vastly exceeded available funding, the Board of Supervisors has developed various sources of revenue to pay for significant addition to the roadway network. Two good examples of privately funded programs are the Foothill Circulation Phasing Plan (FCPP) and the Coastal Area Roadway Improvements and Traffic Signal (CARITS) Program.

FCPP is designed to complete several road and intersection improvements in the Foothill area of South County. It relies on Mello-Roos/Community Facilities District financing for road improvement to be completed largely by 1992.

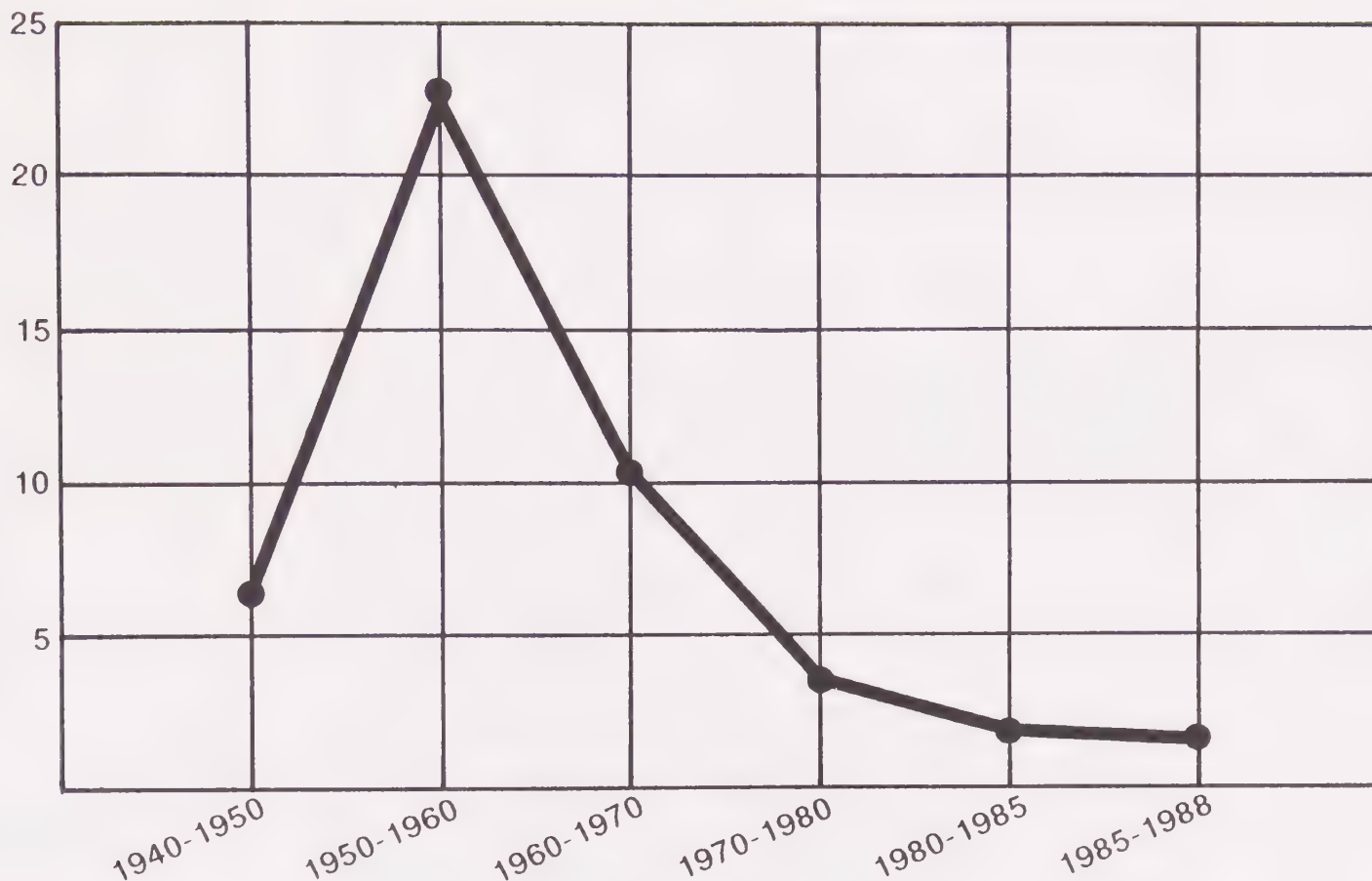
CARITS is intended to provide for roadway improvements in the Coastal Area of South County. It is expected to finance construction of thirteen (13) new roadway links, six (6) intersection improvements and 29 new traffic signals. Most of the improvements are expected to occur between 1990 and 1995.

2. Long Range

Long range roadway improvements are also being planned by various jurisdictions, CalTrans, OCTC and OCTD. In addition to improvements of existing freeways and state highways, three major transportation corridors--Foothill, Eastern, and San Joaquin Hills corridors--are expected to begin construction during the 1990s. These corridors are shown in the MPAH map (Map 1-1).

The Transportation Corridors are expected to help alleviate congestion on the Santa Ana (I-5), the Newport-Costa Mesa (SR-55), the Riverside (SR-91), and the San Diego (I-405) freeways. In addition, they will relieve traffic from congested arterial roads, such as Pacific Coast Highway, Irvine Center Drive/Moulton Parkway/Street of the Golden Lantern, and Irvine Boulevard.

PERCENT



Source: U.S. Bureau of Census
OCP-88 Modified
OCP-88

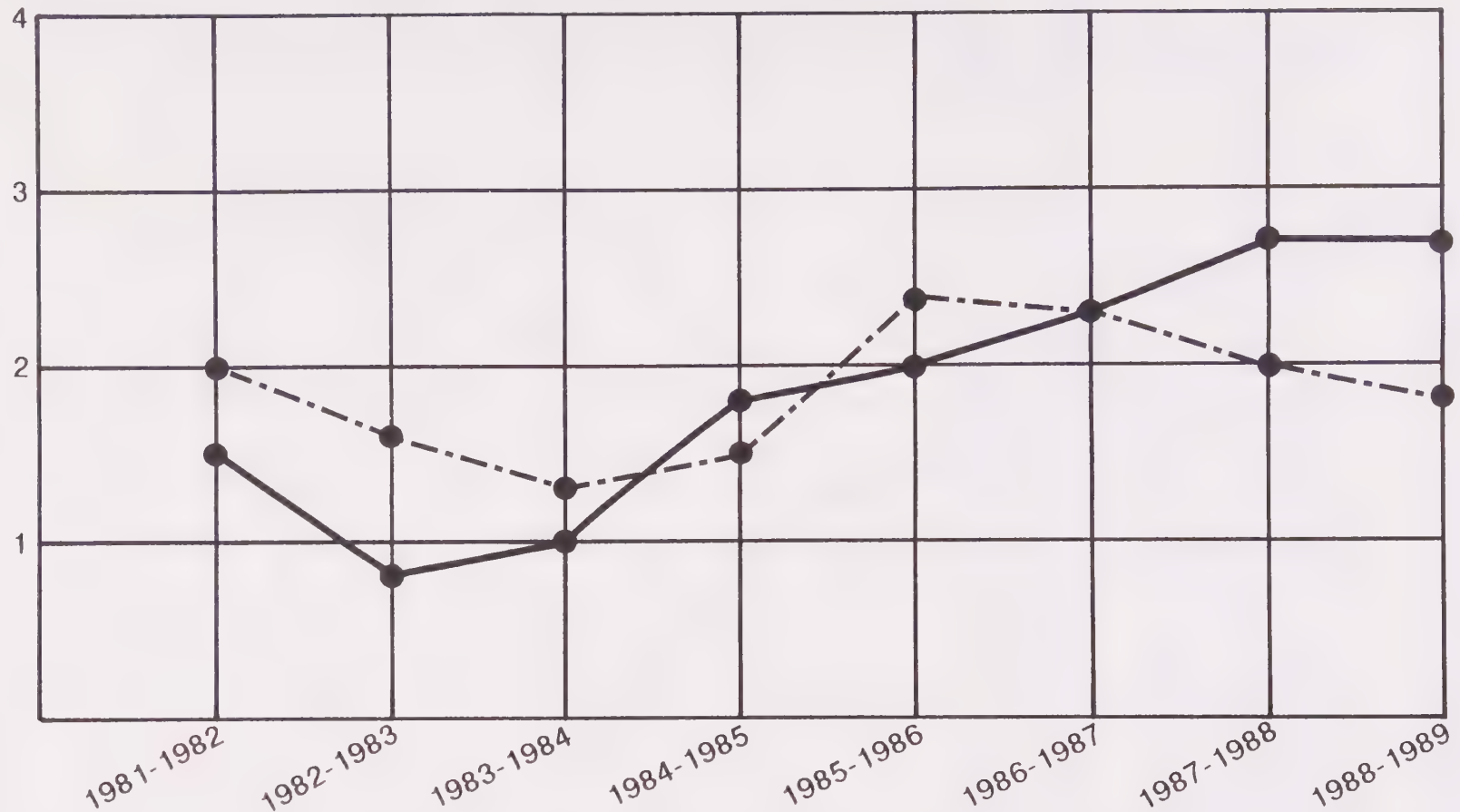
EMA/TP TT7/89

Chart A-17-1: ORANGE COUNTY POPULATION GROWTH PATTERNS
Average Annual Growth Rate, 1940-1988

A-17-7

A-17-8

PERCENT



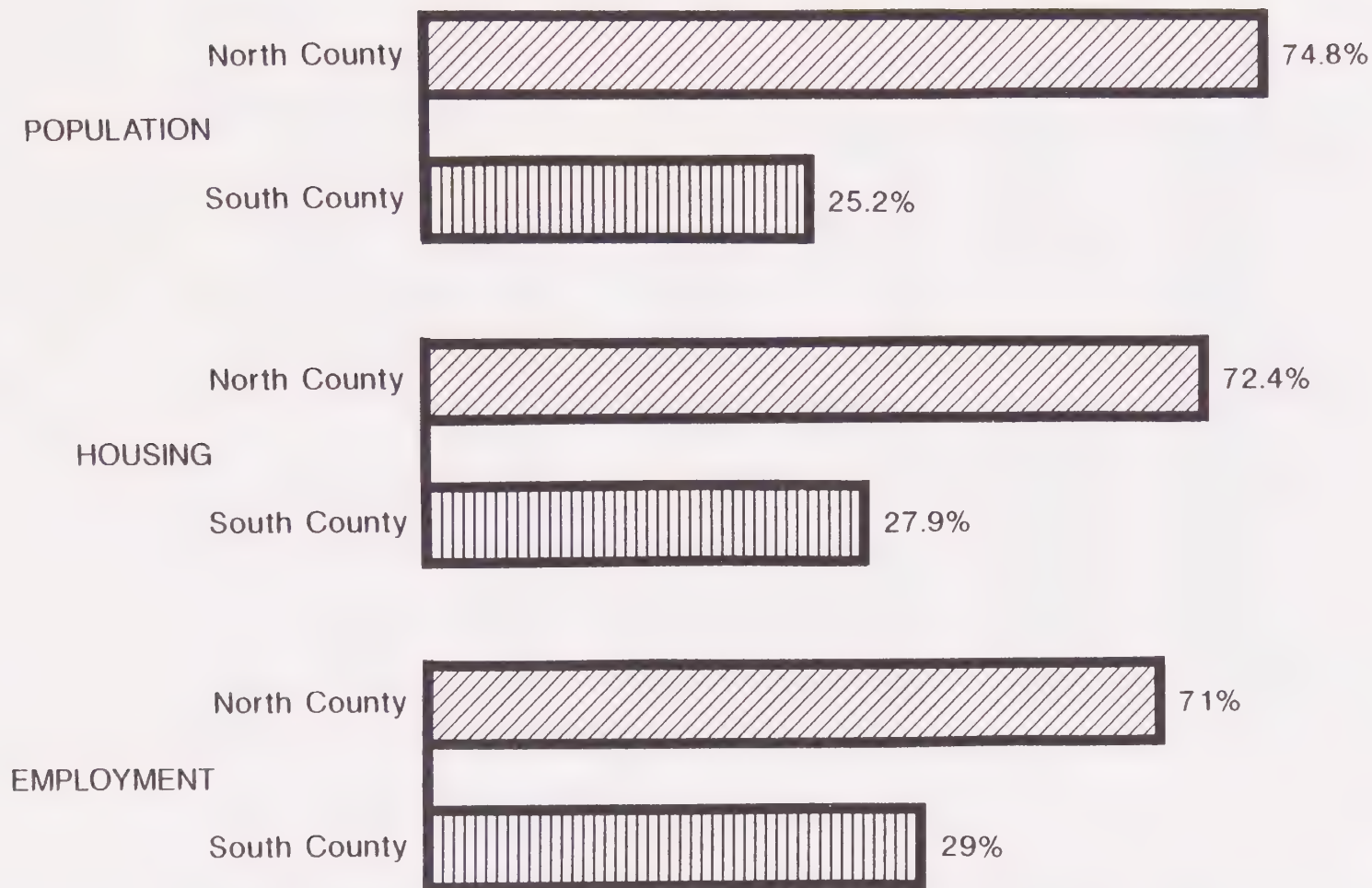
Source: California Department of Finance, Population Research Unit
EMA/TP TT6/89

Chart A-17-2: ORANGE COUNTY POPULATION AND HOUSING GROWTH PATTERNS
Annual Growth Rate, 1981-1989

Legend:

● — ● HOUSING

● - - - ● POPULATION

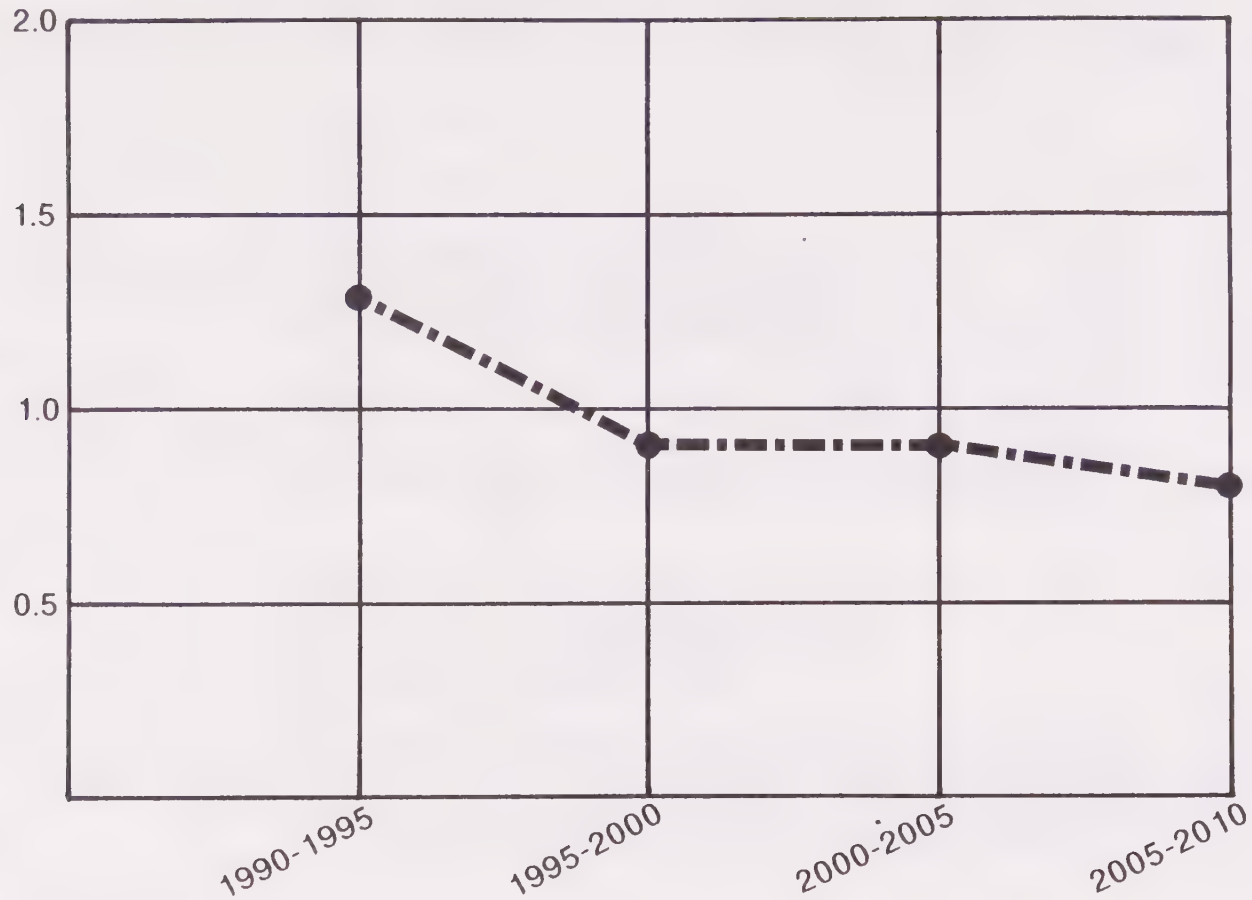


Source: OCP-88

EMA/TP TT7/89

Chart A-17-3: DISTRIBUTION OF COUNTYWIDE GROWTH IN
Orange County, 1985

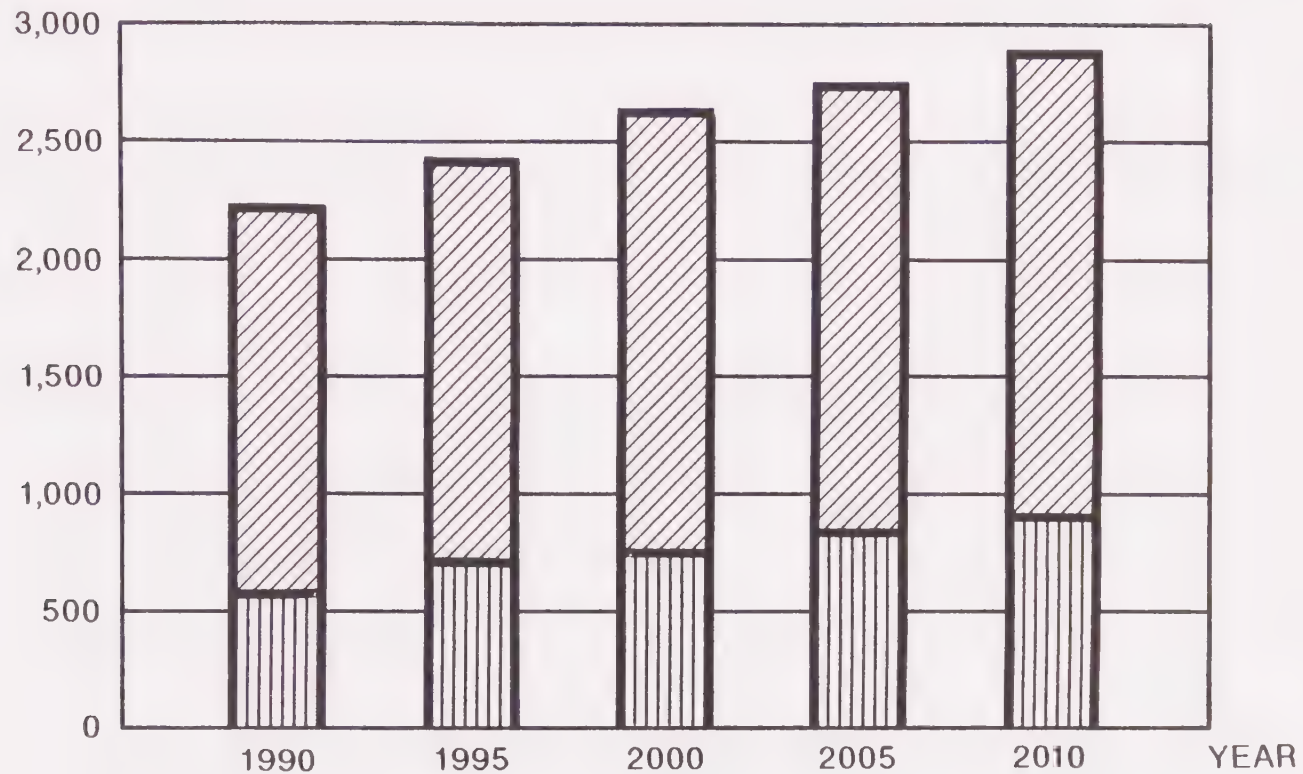
PERCENT



Source: OCP-88 Modified
EMA/TP TT7/89

Chart A-17-4: ORANGE COUNTY POPULATION PROJECTIONS
Average Annual Growth Rate, 1990-2010

TOTAL POPULATION
(thousand)



Source: OCP-88 Modified
EMA/TP TT6/89

Chart A-17-5: ORANGE COUNTY POPULATION PROJECTIONS, 1990-2010

Legend:

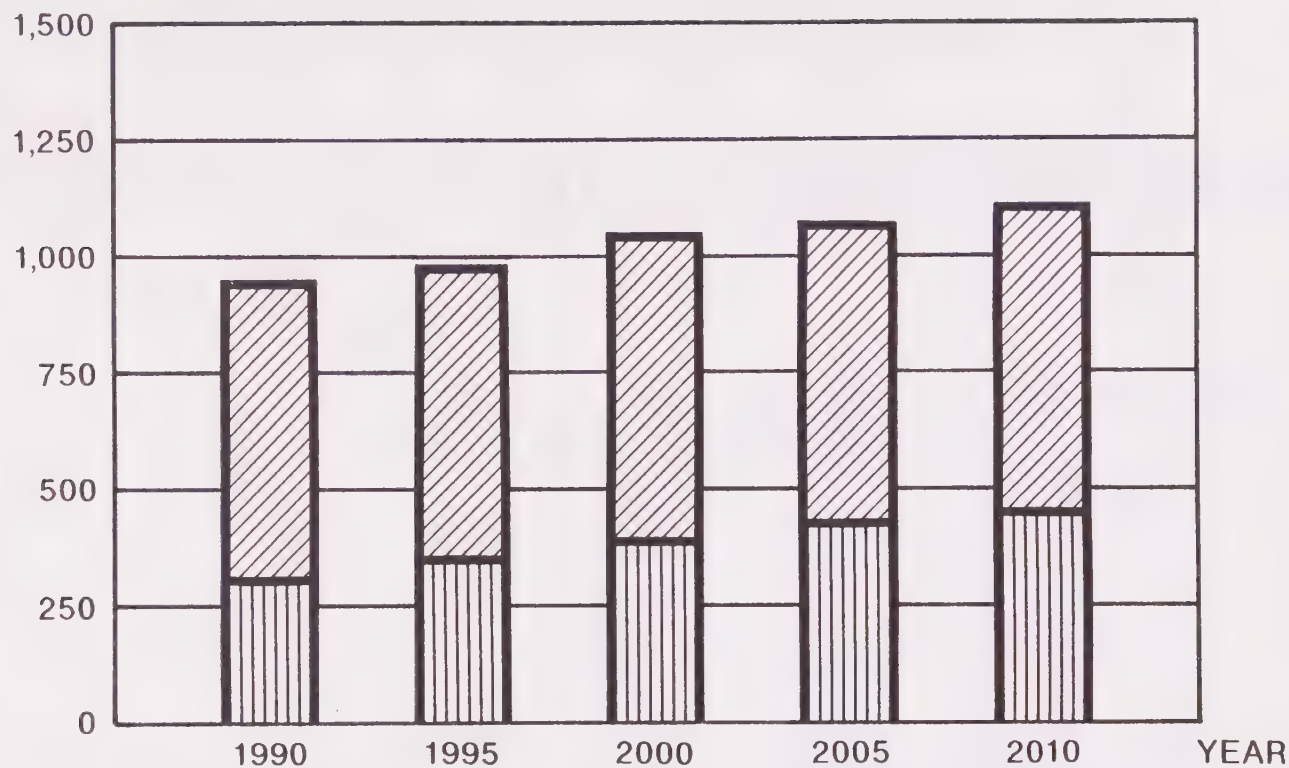


NORTH COUNTY



SOUTH COUNTY

TOTAL DWELLING UNITS
(thousand)



Source: OCP-88 Modified
EMA/TP TT6/89

Chart A-17-6: ORANGE COUNTY HOUSING PROJECTIONS, 1990-2010

Legend:



NORTH COUNTY



SOUTH COUNTY

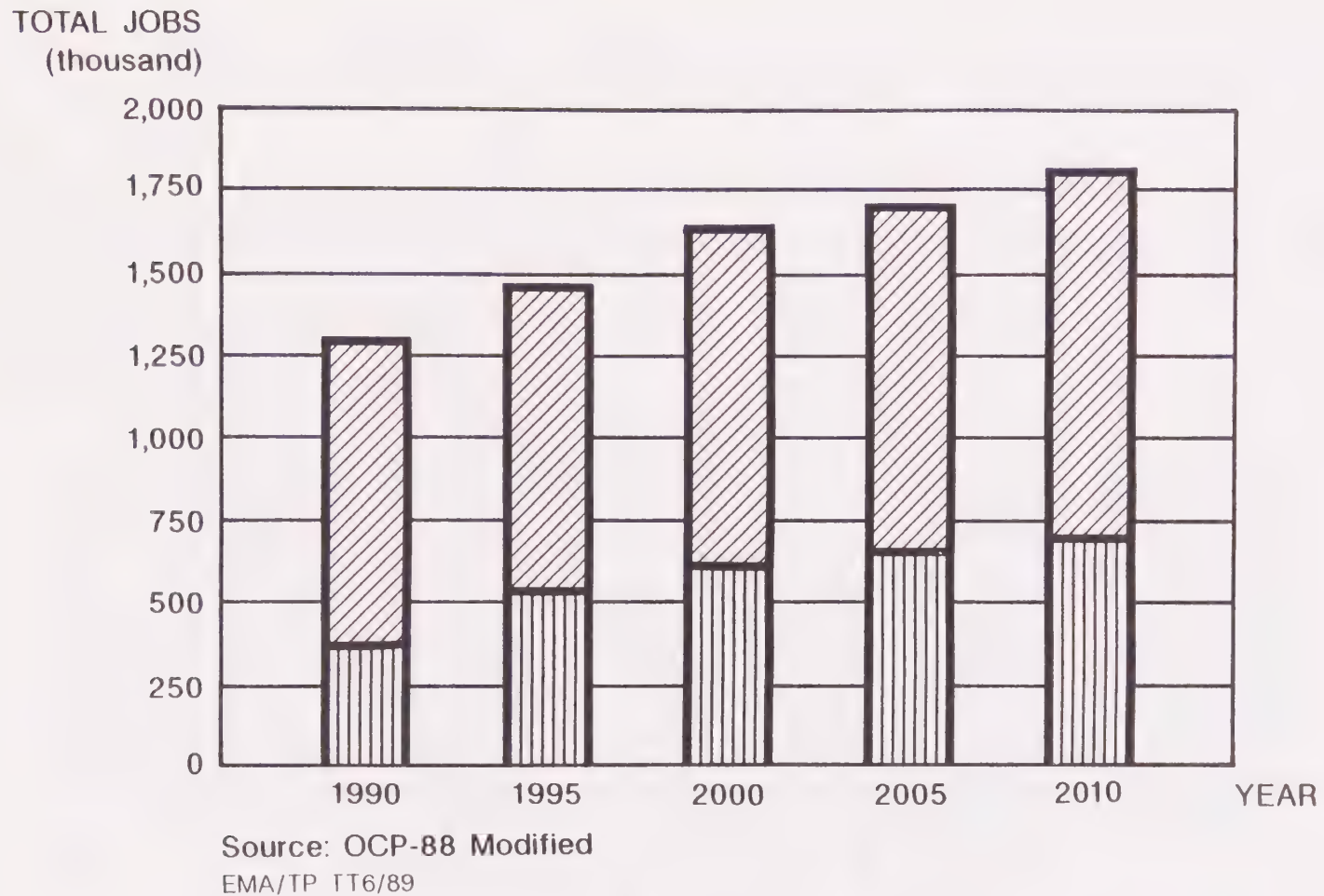


Chart A-17-7: ORANGE COUNTY EMPLOYMENT PROJECTIONS, 1990-2010

Legend:

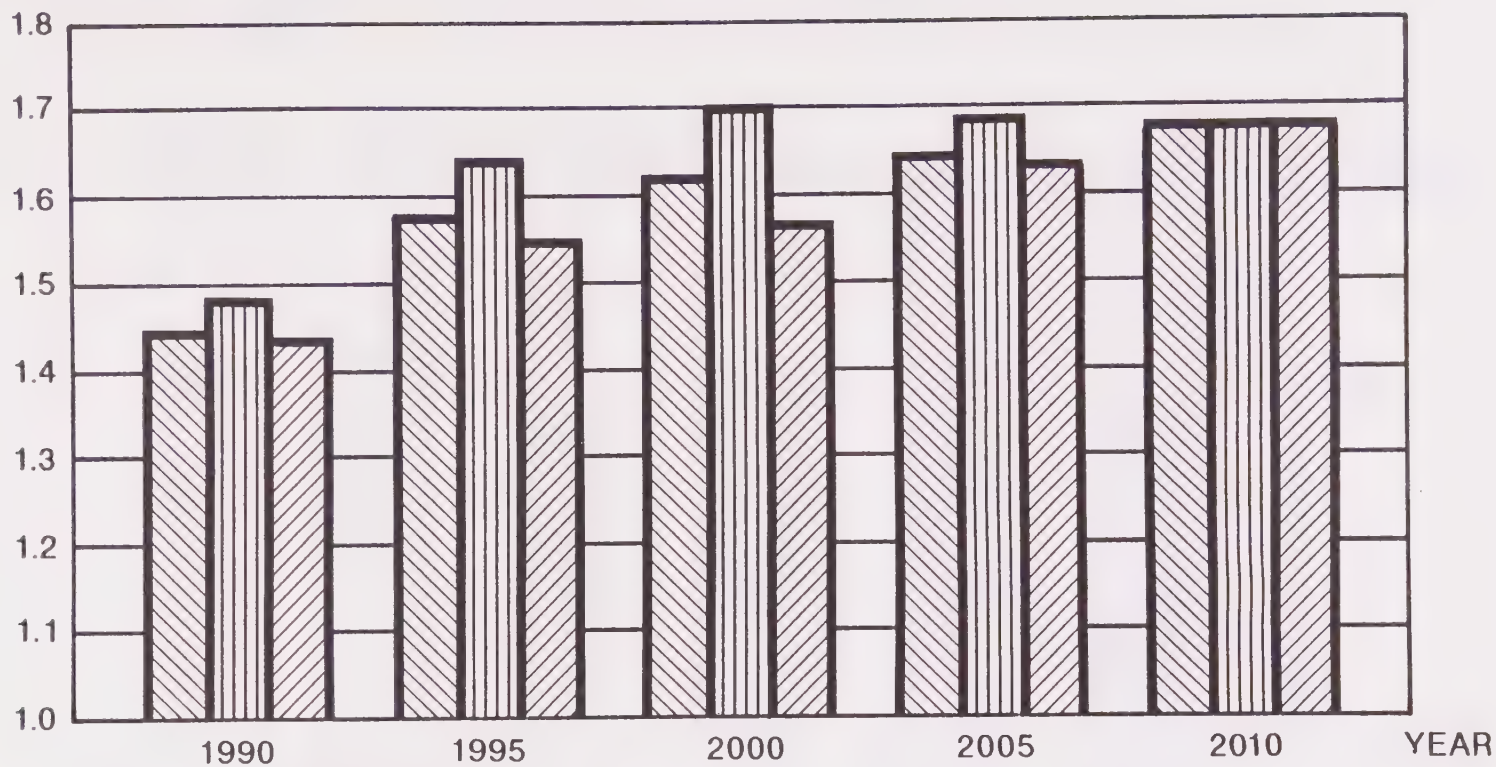


NORTH COUNTY



SOUTH COUNTY

JOB/HOUSING RATIO



Source: OCP-88 Modified
EMA/TP TT6/89

Chart A-17-8: ORANGE COUNTY JOB/HOUSING RATIO PROJECTIONS, 1990-2010

Legend:



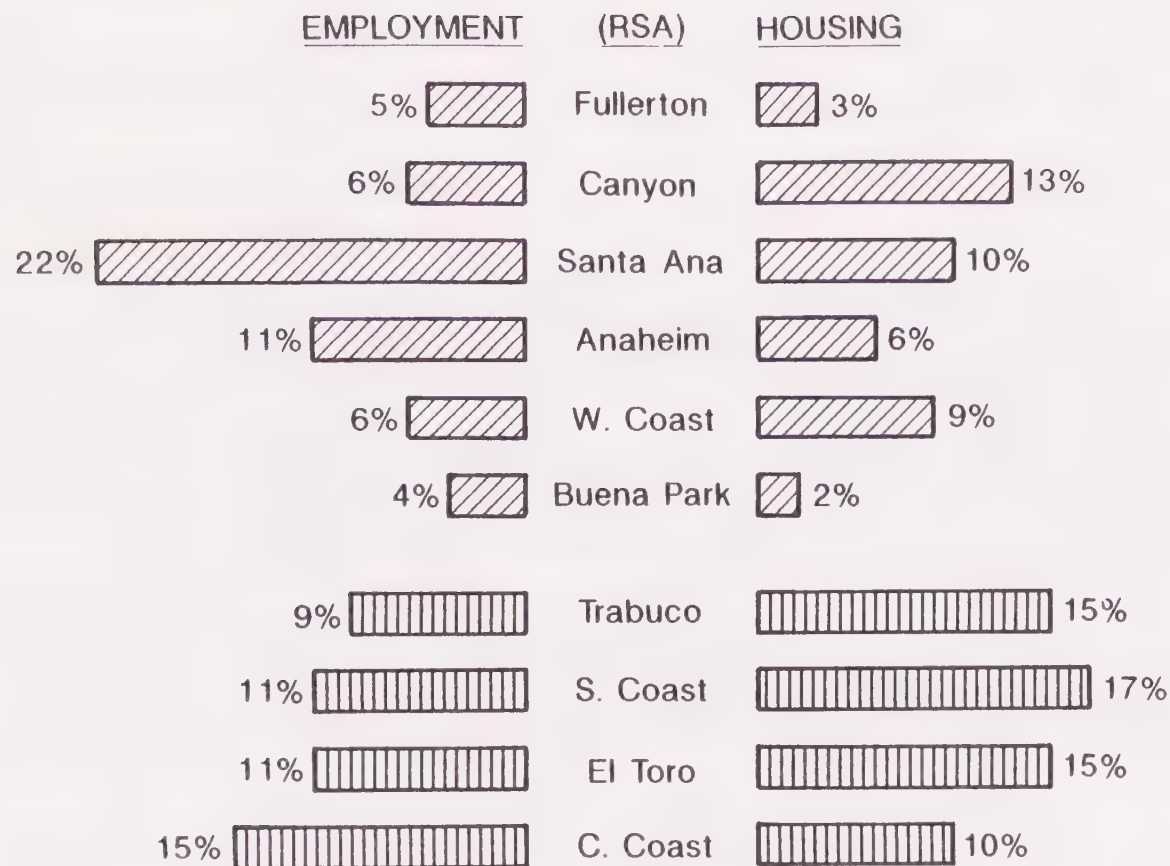
ORANGE COUNTY



SOUTH COUNTY



NORTH COUNTY




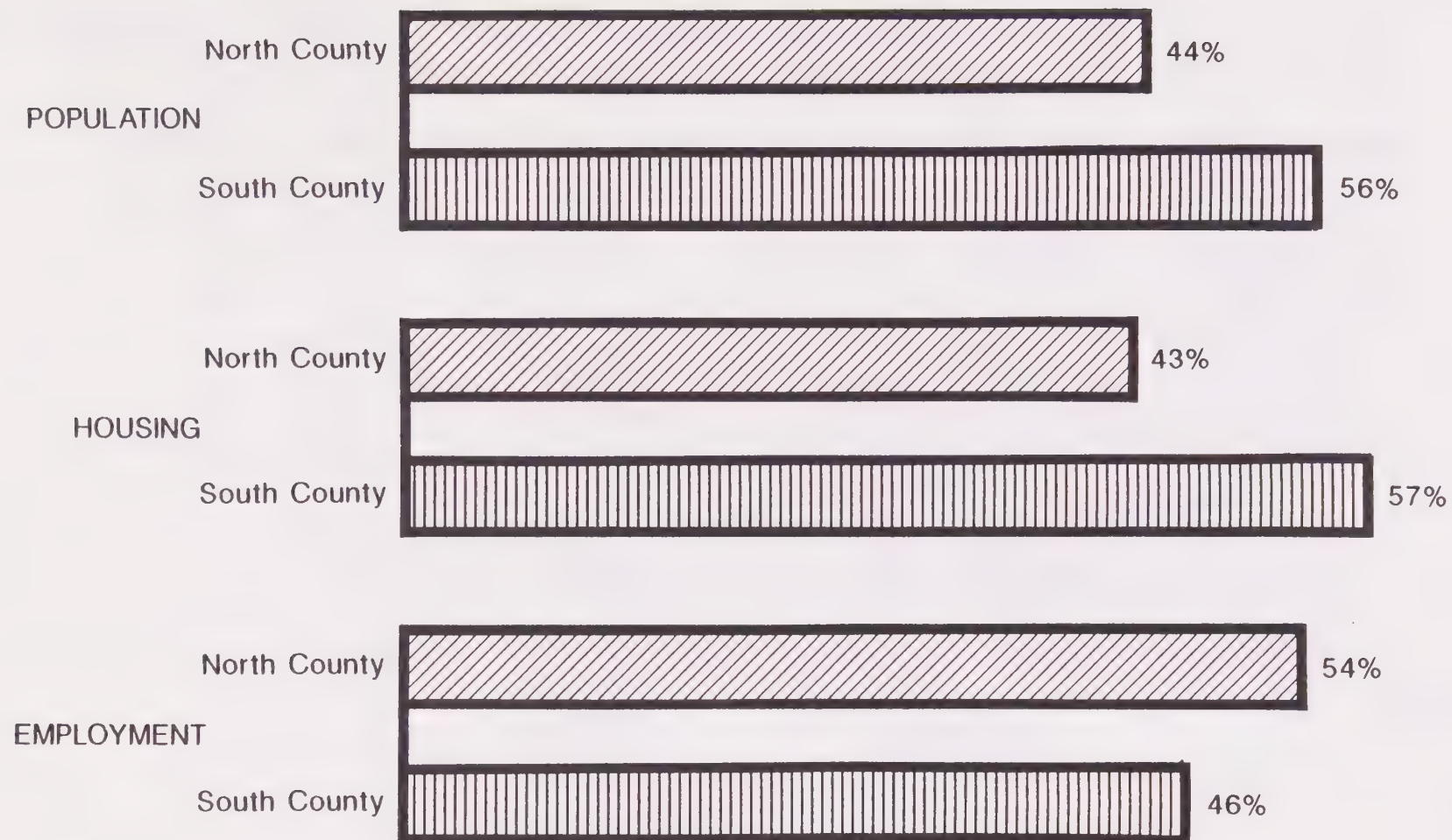
Source: OCP-88 Modified
EMA/TP TT6/89

Chart A-17-9: DISTRIBUTION OF COUNTYWIDE GROWTH BY RSA
Employment and Housing, 1990-2010

Legend:

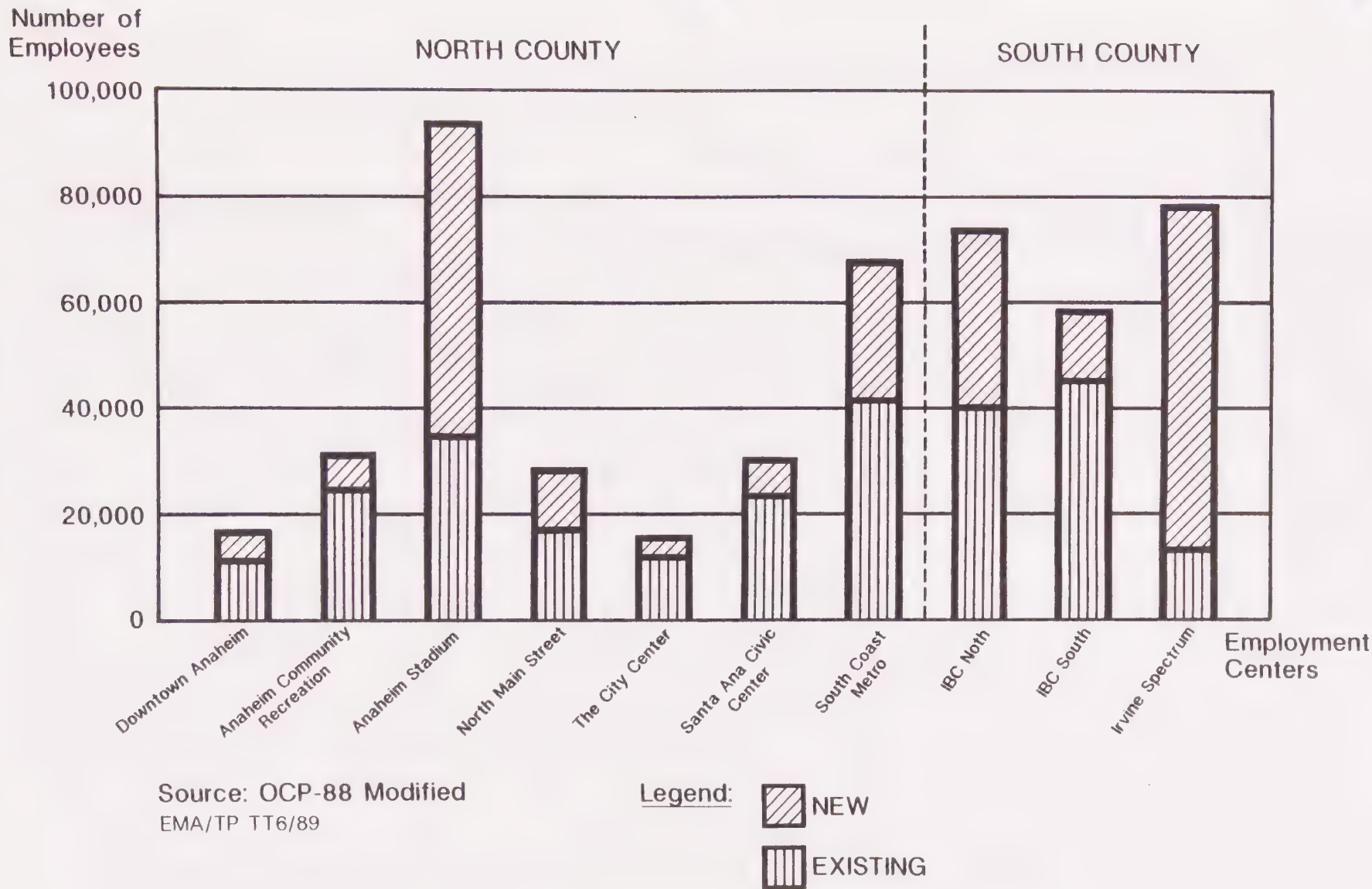
 NORTH COUNTY

 SOUTH COUNTY



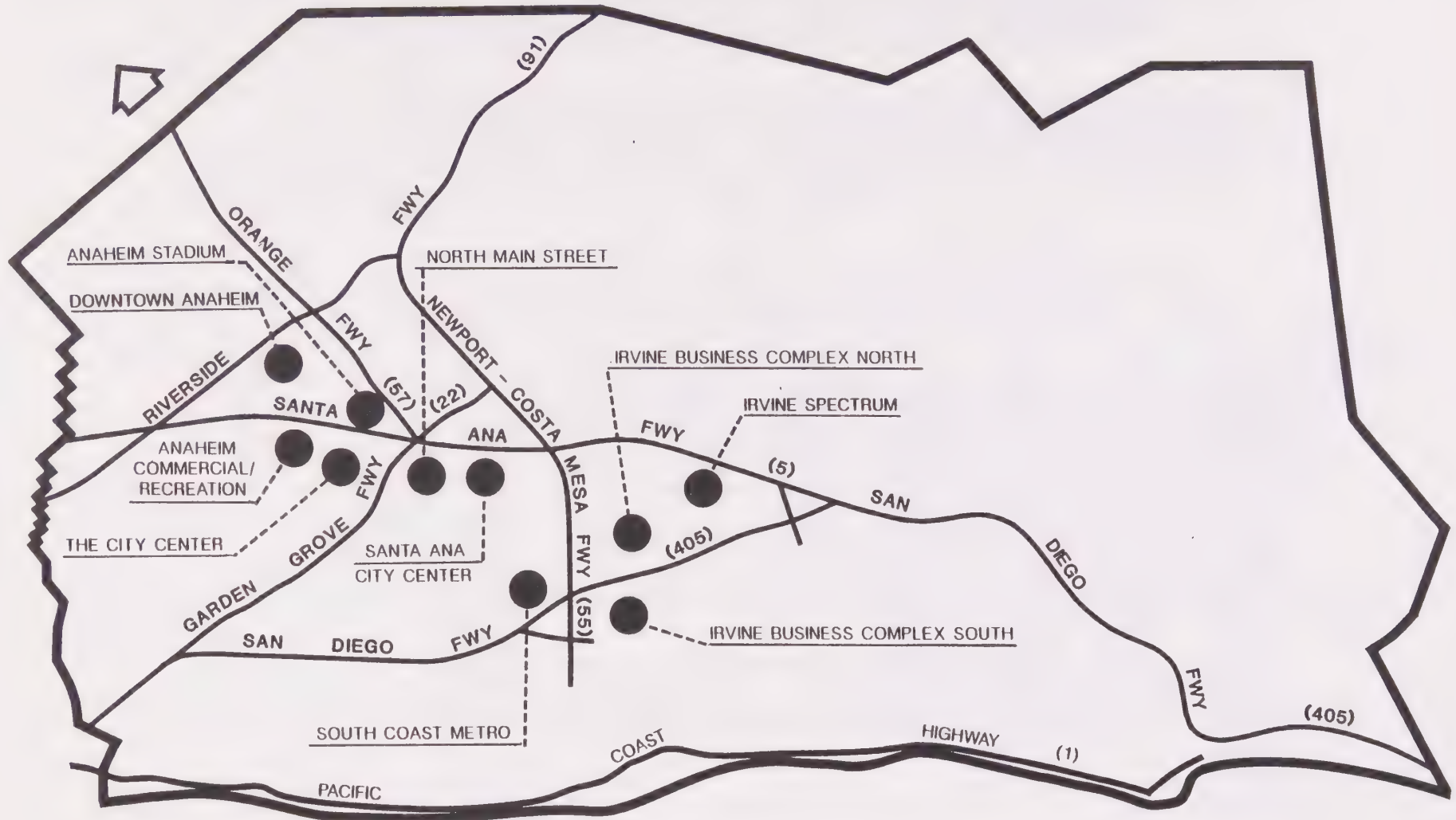
Source: OCP-88
EMA/TP TT6/89

Chart A-17-10: DISTRIBUTION OF COUNTYWIDE GROWTH
Orange County, 1990-2010



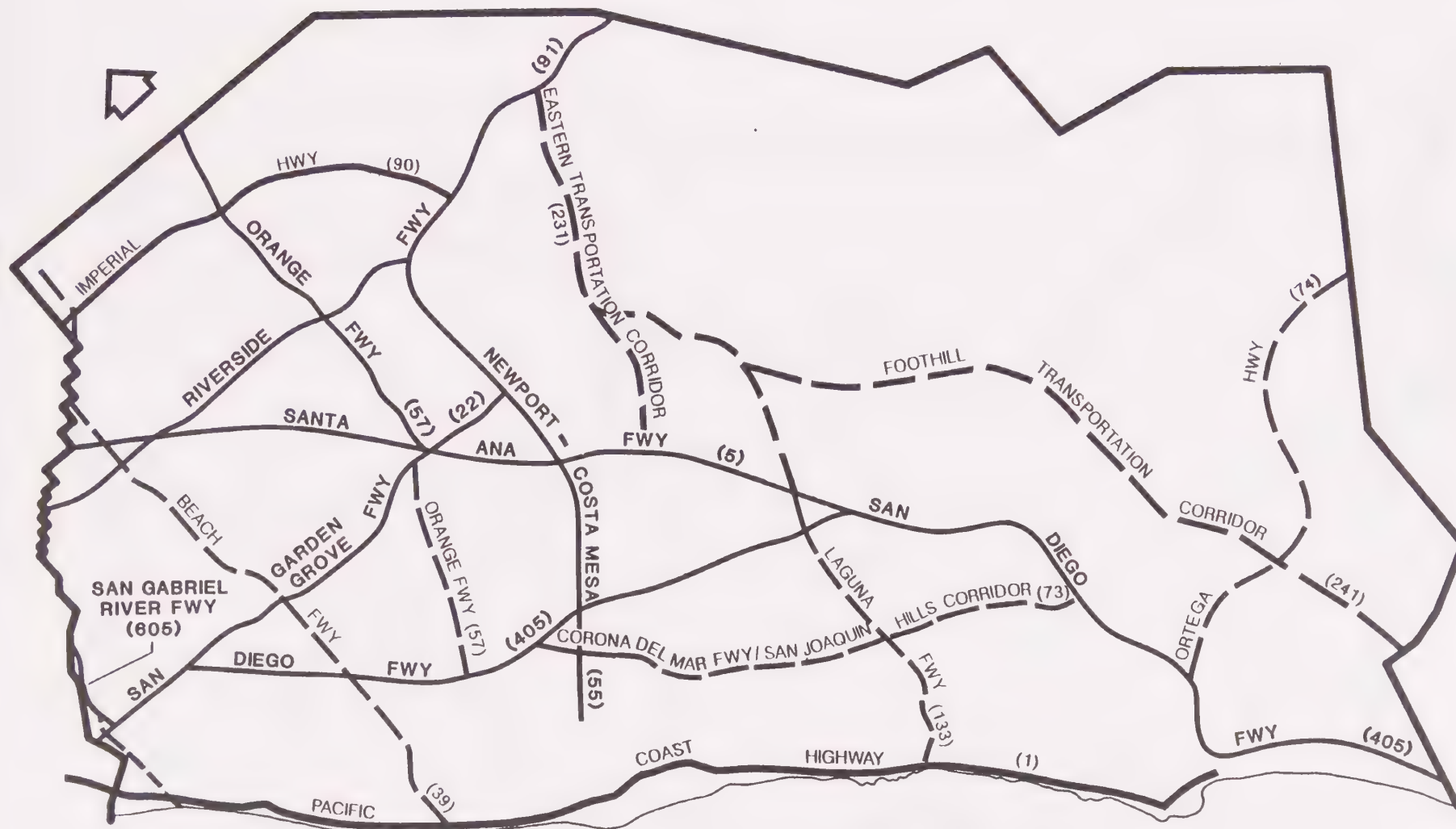
Source: OCP-88 Modified
EMA/TP TT6/89

Chart A-17-11: ORANGE COUNTY PROJECTIONS
EMPLOYMENT AT MAJOR EMPLOYMENT CENTERS, 2010



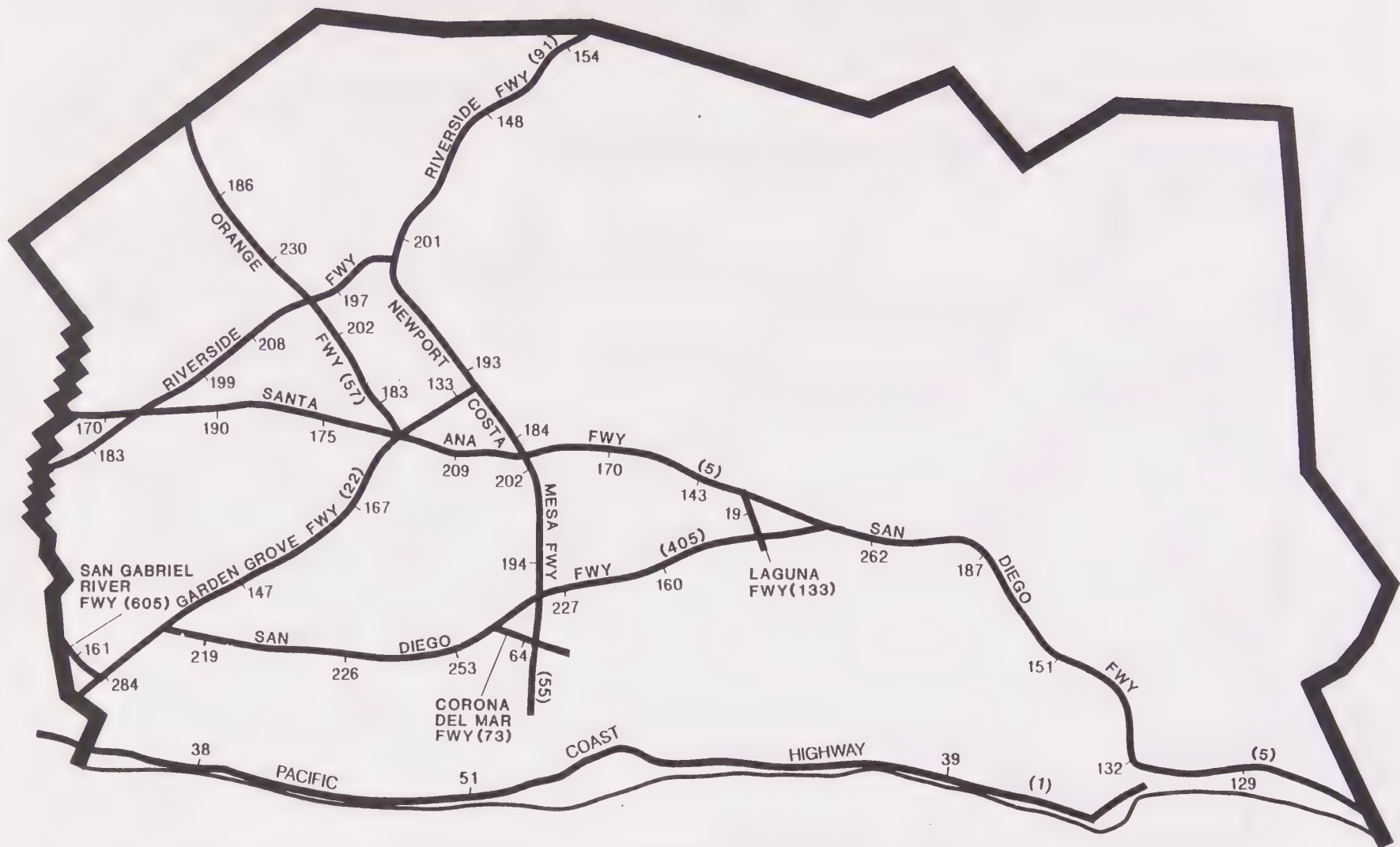
Map A-17-12: ORANGE COUNTY MAJOR ACTIVITY CENTERS

A-17-19



Map A-17-13: STATE FREEWAY AND EXPRESSWAY SYSTEM

— EXISTING - - - PROPOSED



Map A-17-14: EXISTING TRAFFIC FLOW (AVERAGE DAILY TRAFFIC)

Number in thousands(000) of vehicles

SOURCE: TRAFFIC ENGINEERING, EMA, DECEMBER 1988. TRAFFIC FLOW MAP

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